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RECENT UN-REPORTED OPERATIONS PERFORMED AT ST-VINCENTS HOSPITAL.

By E. M. Robinson, M. D.

Birmingham, Ala.

	Total	Recovered	Deaths
Amputation of Breast	2	2	0
Amputation of Arm	1	1	0
Amputation Leg	1	1	0
Herniotomies	3	3	0
Cholecystectomies	3	3	0
Cholecystotomies	3	3	0
Salpingectomies	15	15	0
Cystic Tumor of Liver	1	1	0
Gunshot wound of Bowel	7	3	4
Gastro Enterostomies	1	0	1
Nephrectomy	1	1	0
Enterorraphy	1	1	0
Lipoma	3	3	0
Perineoraphy	4	4	0
Hemorrhoid	2	2	0
Stab wound of Liver	1	0	1
Obstruction of Bowel	4	2	2
Varicoceal	2	2	0

Fistulae	1	1	0
Ectopic Pregnancy	2	2	0
Trephine of Skull	1	1	0
Curettage	4	4	0
Castration	1	1	0
Caesarian Section	1	1	0
Appendectomies	60	58	2
Appendectomy where appendix was primary trouble	43	0	0
Appendectomy where the appendix was removed after opening abdomen for other causes	17	17	0
Oophorectomy	30	30	0
Operation for absence of Vagina	1	1	0

The cases of ectopic pregnancy are interesting from the fact that they were both young women under 25 years. who had given birth to children within the last two years.

They were both of the tubal variety; one ruptured during the removal, the other had ruptured previous to opening the abdomen.

The Cesarean section was in a woman about thirty years old, who was well formed and up to the average in size. I had removed the left ovary with a tumor two years ago. Labor began June 26th at 11 p. m. and continued until 9 p. m., June 28th, when I deemed it necessary to attempt to deliver with forceps. Notwithstanding, the vagina appeared small, I did not doubt that it could be delivered. After strenuous effort at forceps delivery, and satisfying myself that it was impossible to bring the head through the pelvis, I had her removed to St. Vincent's Hospital and did a cesarean section.

I did a hysterectomy fearing sepsis on account of the traumatism which had been produced in the attempt to delivery through the pelvis, and the uterus did not contract readily, and I feared hemorrhage. I was very much disappointed to find a dead baby. The mother showed some shock, but responded readily to the stimulants and made a prompt and satisfactory recovery.

Of 60 appendectomies there were 31 acute suppurative cases. Two of which were fatal. A mortality of 6 1-2 per cent. of 31 suppurative cases. Taken into consideration the fact that the greater number of

these suppurative cases had quite an extensive peritonitis, the mortality will not be considered high. All the chronic cases recovered. In the suppurative cases I first try to open internal to the mass, that is between the mass and the median line, then if the intestines can be properly walled off there is no danger of opening up the abscess, absorbing the pus, searching for and removing the appendix. One of the fatal cases bled to death ten days after operation, the other (a child of six years) was in a dying condition when she was brought into the hospital. Cocaine anaesthesia was used and the abscess was opened and drained. She died two hours after operation. Neither died as a result of the operation.

Ovarectomy was performed 30 times with no deaths.

There were two deaths in fifteen hysterectomies. One of the cases was carcinoma of the cervix, involving vaginal wall. She died of peritonitis about sixty hours after operation. The other fatal case was operated on for puerperal infection, which was due to old pus tubes. She lived about 24 hours.

The breast amputations were of no special interest. One was done after Halstead method, and in the other the Jackson incision was used. The operation is described in the Journal American Medical Association, March 3, 1906, and I consider the incision ideal.

The Bassini operation was performed in all the herniotomies. Cholecystectomy was performed three times in all, of which the gall bladder contained pus in addition to stones and no bile was present. Cholecytectomy was done three times. All of these gall bladders contained bile and stones, but no pus. They were simply drained. In my experience the removal of the gall bladder adds nothing to the danger of the operation either as to immediate results or the rapidity or permanency of recovery. One case of salpingectomy is worthy of special mention. Married for seven years, was 27 years old, had suffered for a number of years with pain and swelling in lower abdomen, intensified at menstrual period, examination revealed the uterus enlarged and immovable with mass on either side. When the abdomen was opened the mass presented and when separating the sigmoid from ovaries and tubes, the sigmoid was torn open, this was protected by gauze towels

until the ovaries and tubes were removed, after which the rent in the sigmoid was closed by Lembert sutures which were reinforced by cushing sutures. My diagnosis of this condition was tubercular peritonitis and salpingitis.

An obstruction formed at this place which lasted for four days giving rise to great distention and other very distressing symptoms, but on the fourth day great quantities of gas passed, followed in few hours by free movement of bowels. Recovery was very satisfactory.

Included in this report are 7 gunshot wounds of bowels, with three recoveries. In the fatal cases the time after the injury before operation ranged from twelve to thirty hours. The cases that recovered were operated upon within twelve hours after injury. The number of perforations in gut ranged from three to a complete severance of the continuity of same. In one case 5 feet of the bowels was removed. Where the small bowel is injured or perforated, and some time has elapsed before operation thereby allowing the bowels to change position in abdomen, and spread infection to different parts of peritoneal cavity the prognosis is rendered very grave. The limited amount of motion accorded the large intestines diminishes the danger from this source.

The prognosis is therefore less grave when the large intestines is injured especially if several hours have elapsed before the patient is operated upon.

The case of stabwound of liver was brought in hospital in dying condition. He was placed on the operating table, was prepared at once and abdomen opened. The right lobe of the liver was cut one-half through and he practically bled to death from this. Gauze was packed into this wound of liver which controlled the bleeding, but he died on the table from effects of hemorrhage preceding operation. The autopsy showed the knife had also penetrated the posterior wall of stomach.

One of the fatal cases of obstruction of bowels was a man 67 years old who had suffered from severe spells of colic in left hypocondriac region. The present attack began 72 hours before he was brought to hospital. A median incision was made, the obstruction found at splenic flecture of colon. A band of adhesions two inches broad had the

colon bound down. Separating the adhesions left bare a large area of bowels which was without peritoneal covering, and when we undertook to bring the peritoneal covering over it again, the obstruction was reproduced, therefore I did not attempt to cover this new surface with peretoneum. Had I done a resection here or a side to side amastomosis I might have saved patient. A paralysis of bowels occurred or was already present as no gas or feocal matter was passed.

The other case was a woman thirty years old who had an obstruction of four days standing which was near ceocum. General peritonitis was present from which she died ten hours after operation. She was addicted to the use of morphine, a fact which I think contributed to the obstruction.

One case which recovered was a little boy eight years old, who had been operated upon ten days previously for appendicitis, an obstruction formed near the incision caused by a bend in the intestines which were held in this position by adhesions.

The adhesions were easily broken up and stump of appendix brought up and attached to parital peritoneum. Gas was immediately passed through a catheter which was inserted into bowels, through the appendicular opening and left in for several days. Fistula closed in a few weeks. The other case that recovered was one in which the obstruction was due to adhesions following an appendectomy some months before. The adhesions were broken up in this as in the other case and gas passed freely into the lower bowel. Patient made an uninterrupted recovery.

The following case I think unusual and therefore give report in full:

Mrs. W., age 20 years, family history negative. Breast well developed. Health good. Never had menstruated. Married about one year. Inability to have satisfactory intercourse was the cause of her consulting a physician, who found the absence of a vagina, there being a small pocket about one-half inch in depth which had never been dilated as intercourse had been taking place through the urethra. Upon my examination found labia, majora and minora normal in size and shape, clitoris normal. Urethra very much dilated. Urine dribling from same and she said since marrying she had been unable to control action of bladder. Examination of pelvic contents through rectum revealed the

absence of any uterus, but could find the ovaries which seemed normal in size. Method used in determining the absence of uterus was by a sound in bladder and finger in rectum.

Operation.—Made incision in median line in order to see and explore the pelvis, found the right and left broad ligaments meeting in centre and uniting without any enlargement to indicate where the uterus should be located. Ovaries and tubes were normal and the ovaries showed many corpus levteum, the result of ovulation. The abdominal cavity was closed and the small vagina dilated and by blunt dissection made about 4 or 5 inches in depth. This was packed with gauze. The vagina tried to close and a smooth glass pessary was held in vagina by a T bandage which patient was wearing five weeks after operation.

ETIOLOGY AND DIAGNOSIS OF GASTRIC AND DUODENAL ULCER.*

Frank Billings, M. D.

Chicago.

Acute gastric ulcer and the so-called abrasions of the mucous membrane of the stomach are identical in their morbid anatomy and pathology. As a rule these are superficial and extend wholly or through a part only of the mucosa. They are not uncommon and many occur in chronic circulatory disturbances due to heart and arterial diseases and to cirrhosis of the liver. They may be postoperative events, especially in abdominal section. They appear in cachectic states due to chronic diseases and are not infrequent in the new born. They may appear in certain neurotic conditions, especially in women.

These acute erosions are soft, sometimes blood stained, often multiple, frequently consist of mere slits in the mucous membrane, may be so small as to escape detection and usually would not exceed 4 mm. in diameter. The largest may be dignified by the name of an ulcer.

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These acute processes are important only when the erosion involves an artery or vein of considerable size, when a fatal hemorrhage may occur. These acute processes will not be further considered in this paper.

ETIOLOGY.

Chronic ulcer of the stomach and duodenum, frequently termed round, perforating or peptic ulcer, follows nutritional disturbance of a limited area of the mucosa, which results in the destruction of this circumscribed region by the gastric juice. The gastric juice is the destructive agent and, therefore, plays the most important role in the causation of ulcer of the stomach and duodenum.

The cause of the condition which permits the gastric juice to attack a part of the mucous surface of the stomach or duodenum is not altogether clear. Probably several conditions may be important factors. It is probable that in certain instances vascular disease in the form of thrombus or embolism, with or without antecedent disease of the wall of the vessel, may be a cause. It is equally true that this condition is not present in the majority of the individuals who suffer from ulcer.

Hyperacidity of the gastric contents, with or without stagnation, is a common accompaniment of ulcer, but it is probable that it is an accompaniment and not a cause of the disease. Chlorosis has been noted in ulcer of the stomach, especially in the young female, but many cases of ulcer occur without anemia and the anemia, when present, is very frequently the result of the loss of blood incident to the ulcer. Central or pneumogastric nerve disease has been ascribed as a predisposing cause, but the evidence is not conclusive. Local ischemia from muscular spasm, especially in the pyloric region, thus predisposing the circumscribed area to destruction by the gastric juice, has been ascribed to this nervous influence. Traumatism from external violence or local traumatism from the contact of rough particles of food on the mucous membrane, and especially in the pyloric region, has been ascribed as a cause. It is known that small traumata of the normal mucous membrane heal rapidly and trauma alone is, therefore, probably not a cause. Stasis of stomach contents with decomposition has been ascrib-

ed as a cause, and it doubtless is a factor, especially when associated with bacterial infection. Bacterial infection with invasion of the mucous membrane may so reduce the nutrition of the cells as to render them liable to digestion by the gastric juice. Recently Dr. Fenton B. Turck, Chicago, has been able to produce a typical chronic ulcer of the stomach by feeding dogs with colon cultures over a considerable period of time.

Self-digestion does not occur in a healthy stomach because of a resistance of the normal cells which has heretofore been called vital. It has been suggested that this resistance is, in reality, the presence in the cells of the stomach of an antibody. Under certain conditions this antibody may disappear or may be so disturbed that it no longer protects the mucous membrane in certain localities permitting the gastric juice to attack the tissues.

To sum up our present knowledge of the cause of ulcer, it is that the gastric juice is the active agent in its production in a limited area and that this occurs because of a nutritional disturbance in a circumscribed region of the mucosa. That the nutritional disturbances may be brought about by bacterial infection associated with local trauma and that vascular disease, local areas of muscular spasm, gastric stagnation and anemia may all serve as factors in certain instances.

DIAGNOSIS.

In a classic case of ulcer there are three chief diagnostic signs. These are, in their order: pain which is usually felt in a localized area and is aggravated by a palpation and by food; second, hematemesis or melena; third, hyperchlorhydria and the some time evidences of gastric stagnation.

The pain of ulcer is characterized by the fact that it is usually felt in the localized area and that it frequently appears to the patient to pass through the body, to be felt in the back, usually on the left side near the spine at the eleventh or twelfth rib. The pain is often periodic, appearing for a day or days with severity and may be followed by an interval of less discomfort varying from days to weeks to months or even years. With the pain there is a localized tenderness which is

very severe and is usually situated in the epigastrium. The pain is frequently aggravated by food. In certain instances this occurs immediately after food enters the stomach and in others not for one, two or even three hours after food is taken. The pain frequently continues until the stomach is evacuated by vomiting or until the food has passed through the pylorus. Not infrequently one obtains a history of attacks of acute exacerbations of pain extending over a period of years. These exacerbations are frequently attended with vomiting of food, with or without the appreciable appearance of blood. Frequently such patients are said to have dyspepsia, with the appearance periodically of neuralgia of the stomach.

Hematemesis and melena occur in fully one-half the cases of ulcer of the stomach. The vomited blood is usually dark in color, acid in reaction and is clotted. When passed by the bowel it is frequently tar-like in consistency and color. The occurrence of blood in vomited material and in the stool in an individual who has suffered from dyspeptic symptoms, and especially if he has had pain, is an important sign of ulcer. Occult blood may be detected in the stomach contents and in the stools from all patients who suffer from ulcer of the stomach. The appearance of occult blood usually is not constant, but will always be found if the tests are applied over a sufficient long period of time. The Weber test for occult blood is a practical one and is reliable when safeguarded by the exclusion of the contamination of the stomach contents and of the stool, by blood from other sources, than the stomach and duodenum. The presence of iron taken as medicine and excreted in the stool will give a blue line resembling the blue line of the presence of blood when peroxid of hydrogen is used in the Weber test.

Hyperchlorhydria is present in the majority of ulcers of stomach and of the doudenum. In a small minority of patients with ulcer there may be a normal or subnormal amount of HCl or an entire absence of it in the stomach contests. In many conditions, especially neurotic in character, hyperchlorhydria exists without ulcer. Therefore, the occasional absence of hyperchlorhydria in ulcer, and the fact that it frequently occurs in neurotic conditions, makes it less reliable as a

diagnostic sign in ulcer. Hyperchlorhydria with evidences of pain as indicated above and with the presence of blood, either evident or occult, in the stomach contents and the stool, however, is a positive sign of ulcer. Hyperchlorhydria with gastric stagnation and especially if the fasting stomach shows the presence of a considerable amount of acid secretion, is also of importance in the diagnosis of ulcer.

Chronic ulcer is often latent, and, if latent, one or all of the signs given above may be absent. Frequently intervals of latency follow periods which present the above symptoms. A careful investigation of the history of the patient will frequently enable one to elicit a history of attacks of acute dyspepsia associated with pain followed by intervals of latency with little or no symptoms of indigestion. In the latent state an ulcer may be partially or completely healed and the subsequent acute attack be due to a recurrence of the ulceration or to the formation of a new ulcer. In the latent period a careful examination will show, as a rule, undue epigastric tenderness; will usually show hyperchlorhydria, and, if the ulcer be unhealed, occult blood in the stomach contents and stool. Not infrequently, too, the latent condition will be accompanied with the secretion of an usual amount of acid gastric juice within the fasting stomach.

Duodenal ulcer is not infrequently associated with gastric ulcer, and its etiology is probably the same. Ulcer occurs in the duodenum between the pylorus and the papilla of the bile duct. So situated, its position is so near the pylorus that is produces practically all of the symptoms of the gastric disease, with the exception that usually melena alone and no blood vomiting occurs.

Chronic ulcers of the stomach occupy, in the great majority of cases, the pyloric half of that organ and the largest number of them appear on the posterior wall. When near the pylorus, the saddle ulcers, so called, may occur, and in some instances they may cover a very large surface. When near the pylorus they cause tonic contraction of the stomach, involving the pyloric end of the stomach with resulting stenosis. Stagnation of stomach contents results with, at first, hypertrophy of the muscle of the stomach. Chronic ulcer involves the deeper structures of the stomach wall and may have at its base the submucosa,

the muscle or the thickened peritoneum which frequently becomes adherent to some neighboring organ. The scar resulting from partial or complete healing of an ulcer, the infiltrated and thickened wall of the stomach or plyorus and the perigastric adhesions frequently produce disturbances of motility which result in symptoms of great importance in the diagnosis of ulcer. Given a history of dyspepsia with pain, tenderness, hematemesis or melena, or of occult blood in the stomach contents and stool, hyperchlorhydria with evidences of gastric stagnation, if after a full meal the stomach does not become practically empty in seven hours and if the stagnant element is hyperacid and if it contain undigested starch cells, ulcer of the stomach or of the duodenum near the pylorus is present.

DIFFERENTIAL DIAGNOSIS.

Cholecystitis, with or without gallstones, may simulate ulcer of the stomach. Such an attack is associated with more or less severe pain in the epigastrium which may radiate to the right shoulder. There is usually marked tenderness in the region of the gall bladder, which, when pressed on, causes a pain which usually radiates to the epigastrium. Hyperchlorhydria may be present, but in uncomplicated cases blood is absent from the stomach contents and from the stool. With adhesions between the gall bladder, the liver and the pylorus, motor disturbances of the stomach may be present. In the interval between the attack of cholecystitis there may be some tenderness in the gall-bladder region and especially if sharp percussion be made over a limited area. This tenderness is more characteristically elicited if the stomach is first distended with gas. When cholecystitis is associated with jaundice and evidences of general infection manifested by chill and febrile disturbance, the diagnosis is more plain.

In pyloric stenosis from simple hypertrophy, there is not the severe pain of ulcer nor is there usually the frequent hyperchlorhydria of ulcer. Simple hypertrophy occurs most frequently in the new born. The differentiation of pyloric stenosis from simple hypertrophy can be made usually from the history, which will elicit the fact that the patient

suffered at some time in his life with the characteristic symptoms of ulcer.

Cancer of the stomach, especially of the pylorus, may present difficulties in diagnosis, for the reason that not infrequently cancer is engrafted on an ulcer base. When this occurs the history of the patient will frequently be characterized by the symptoms of ulcer with usually a latent period preceding the development of the neoplasm. In such cases there may be the pain, the tenderness and the hyperchlorhydria of an ulcer and usually the presence of a palpable tumor. As ulcer of the stomach may cause infiltration of the stomach wall and of the pylorus to a degree which will afford a palpable tumor, the diagnosis would necessarily be in doubt in such cases. In cases of sufficiently long standing, metastatic growths in the liver and in the palpable lymph glands, especially those above the clavicle, the cachexia, the anemia and the presence of decomposing stomach contents, containing lactic and other organic acids and the Oppler-Boas bacillus, would enable one to differentiate the disease from ulcer.

NEUROSES OF THE STOMACH.

Neuroses of the stomach are very common in every-day practice. They may be associated with sensory, secretory and motor disturbances. There may be severe pain and burning, hyperchlorhydria, vomiting or spasm of cardia or of the pylorus. In uncomplicated cases, blood, both apparent and occult, would be absent from the stomach contents and feces, but the other conditions named may be so severe that it will require a study of a considerable period of time to enable one to say that ulcer is not present.

Attacks of gastric crisis in the course of locomotor ataxia have been mistaken for ulcer of the stomach. There should be no difficulty in recognizing the fundamental cord disease if a careful examination is made.

The referred pain of appendicitis may appear in the epigastrium with the association of nausea, vomiting, etc. It may be mistaken for perforating ulcer, but should never be mistaken for uncomplicated ulcer.

The Dietl phenomenon occurring with floating kidney is associated

with epigastric pain, nausea, vomiting, etc. It should not confuse the observant clinician.

The abdominal and sometimes epigastric pain of pneumonia and of pleuritis will not be mistaken for ulcer by one who examines his patients.

Ulcer of the stomach and duodenum is not an uncommon disease. When the classic symptoms are present, the diagnosis can be easily made. When the disease is latent and when it is masked by conditions, the result of a neurotic temperament, the diagnosis may be difficult. Sufficiently long study of the patient and of his history, of the chemical constituents of the stomach contents, of the motility and, finally, the test for occult blood in the stomach contents and in the stool, will enable one to arrive at a definite diagnosis in most individuals.

HEPATIC THERAPEUTICS.

By Hubert Richardson, M. D.

Maltimore, Md.

The treatment of the liver has to be considered from two standpoints, medical and hygienic. The medicinal treatment of the liver is but little understood, being confined to the use of a few drugs, the effects of which are irregular, owing to our being unable to distinguish the different pathologic conditions. Excluding the surgical diseases of the organ and those of the biliary passages, the pathology of hepatic disease can be summed up under the heading of Cirrhosis, a condition which is always the result of an infection or toxemia.

The hepatic cirrhoses are divided into two classes—those in which the lesions are simply a connective tissue growth, a simple sclerosis, and those in which the sclerotic changes are accompanied by lesions of the hepatic cell. Toxic cirrhoses may be due to an autointoxication or to a heterointoxication, the former being associated with digestive disturbances, gout, diabetes, etc., the latter exemplified by alcohol, lead, or phosphorus poisoning; the one associated with the cirrhosis of Laennec and annular cirrhosis, the other associated with hypertrophy, demonstrating the resistance and effort at compensation

of the sick organ. Infectious diseases, as malaria, syphilis, etc., produce cirrhosis, usually affecting the biliary system, Hanot's hypertrophic cirrhosis being typical of this form. There are cirrhoses due to mechanical causes, as those associated with cardiac disease.

Cirrhoses in which there is simply a growth of connective tissue do not long continue without affecting the liver cells, producing fatty, amyloid, pigmentary degeneration, causing more or less grave derangement of cell function. During the progress of the disease they cause three modifications of function—exaggeration, diminution, and perversion. As a rule, the exaggeration and perversion of function are transitory conditions; they are represented by the hypertrophic toxic cirrhosis, the result of the resistance of the organ to the disease, but the overtaxed cells gradually succumb to the hyperfunction entailed and hepatic insufficiency follows; the nature of the perversion or exaggeration controlling the precise form of insufficiency which results. Hepatic insufficiency may exist without demonstrable cell alteration; more often it is symptomatic of distinct lesions, but it means that the organ is unable to fulfill its normal functions. The functions of the liver may be divided into four groups:

1. Circulatory. The liver destroys the erythrocytes, playing the part of a regulator to the composition of the blood. It holds iron in reserve, obtaining it from the destroyed cells and from the food.

2. Glycogenic. The liver forms and holds in reserve the glycogen, controlling the carbohydrate nutrition; it also controls the proteid and fatty metabolic processes.

3. Antitoxic function. The liver forms urea from ammonia, forms and destroys uric acid, forms the sulphocon jugation of the phenols; it arrests and modifies toxic substances, usually by oxidation, being the organ in which the most active oxidative processes occur.

4. Biliary function. The liver forms a secretion—the bile, which may be considered both an excretion and secretion, as it contains the bile salts, glycocholate and taurocholate of soda, which are necessary for intestinal digestion, while the bilirubin and other substances are excreted into the intestine for elimination.

Of these four groups of functions it is evident that one or more be

deficient, and to treat any case it is of importance to decide which function is insufficient. Physical examination gives little or no help in differentiation. Antemortem examination of the bile is impossible except in cases of fistula, and it is to the urine and feces that we must look for the data necessary for a diagnosis. The following are the points to be examined to determine the nature of the hepatic insufficiency: Alimentary glycosuria, hypoazoturia, ammonuria, hyperazoturia, urobilinuria, indicanuria, intermittent elimination of methylene blue, the oxidation of sulphur, the conjugate sulphates, uroerythrin, and hippuric acid. The feces should be examined for fat, bile pigments, and undigested proteid.

Alimentary glycosuria, first studied by Claude Bernard, followed by Robineau, Roger, Hanot, Gilbert, Reynaud, and others, as a pathologic condition, is usually tested by the administration of 200 grams glucose or levulose syrup. Should the urine contain sugar, giving Fehling's reaction, the glycogenic function of the liver is affected. The value of his test as evidence of general hepatic insufficiency is disputed; Roger found the test positive only in 6 out of 10 cases of insufficiency, Surmont in 10 out of 15, Bierens and Haan in 18 out of 29, Reynaud and Olmer in 11 out of 30, Maury in 16 out of 53 cases. In atrophic cirrhosis Valmont found the test positive in 1 out of 7 cases, Mehring in 2 out of 9, Frerichs in 2 out of 19 cases of phosporus poisoning. These figures show that in hepatic insufficiency the glycogenic function is impaired in about 40 per cent of the cases, and in atrophic cirrhosis in about 16 per cent.

The test for urobilin in the urine is easy and should never be neglected. The filtered urine is heated with a little ammonia and a drop or two of zinc chloride added; if urobilin be present a green fluorescent coloration appears. A more complicated test is to saturate the urine with ammonium sulphate and dissolve the precipitate in alcohol; a reddish-brown colored solution is obtained, which can be tested with ammonia and zinc chloride solutions or with the spectroscope. The latter can also be used with the fresh urine, but is too delicate, as small quantities are detected which are not pathologic. The question as to whether urobilin is formed in the intestine or in the liver is still a

matter of dispute. Hayem says that urobilin is the pigment of the diseased liver, and states emphatically that it is never found in the urine except in cases of hepatic insufficiency. Vires considers that clinically the presence of urobilin in the urine is definite proof of hepatic disease, and that it is secondary importance where it is formed; he considers urobilin the pathologic and bilirubin the normal excretion of the liver.

Indican is found in small quantities in normal urine; in excess it is associated with hypochlorhydria, sometimes with hyperchlorhydria, with the presence of pus in any part of the body, in Asiatic cholera, cancer, typhus, and constipation; it is probably of intestinal origin, but the liver takes an active part in its formation. It is present in excess in most hepatic diseases, but is not an absolute sign of hepatic insufficiency; it should be regarded as one of the toxins which produce the disease.

The elimination of methylene blue is a test which is difficult to carry out, at least in private practice; it consists in injecting 0.05 gram of the methylene blue 1-20 per cent. solution and watching its elimination in the urine. Under normal conditions the coloration of the urine is regular, increasing to a maximum, and then diminishing. In patients suffering from hepatic disease the coloration is irregular, alternating in depth of color. In severe cases the coloration may be intermittent.

Hypoazoturia is the result of the failure of the liver to form urea from the carbonate and the carbamate of ammonia, consequently the proportion of the total nitrogen eliminated as urea is reduced and the ammonia increased. The methods for the quantitative estimation of urea and ammonia are complicated; Follin's method is best, but tedious for general practice.

Under normal conditions the amount of nitrogen eliminated as urea should be about 82 to 95 per cent. of the total nitrogen; in cirrhosis the percentage of urea nitrogen may be reduced to 73 or 79 per cent., in jaundice from 50 to 70 per cent, and yellow atrophy from 40 to 60 per cent.

The urea function of the liver can also be tested by injecting from 5 to 6 grams of ammonium acetate into the buttocks; the ammonia is

converted into urea under normal conditions, but is eliminated as ammonia if the hepatic function is impaired. A certain proportion of the sulphur is eliminated not fully oxidized to sulphate; if this proportion is increased it is evidence of imperfect hepatic function, the liver being the organ in which the most active oxidizing processes of the body are carried out. The proportion of neutral sulphur to total sulphur eliminated under normal conditions is from 10 to 12 per cent; in hepatic insufficiency it may be increased to 40 per cent. This is considered by many to be one the most important of all tests for diagnosis.

Roger and Garnier introduced a solution of dihydrogen sulphide into the rectum; under normal conditions the gas is returned by the liver, but in hepatic insufficiency it is eliminated by the lungs, the expired air blackening paper wet with lead acetate solution.

Uroerythrin is the bright pink color so often seen in the brickdust sediments of urine; it occurs in acute diseases of the respiratory system, in acute rheumatism, and in gout. It is probably only in the latter case that it can be considered as evidence of impaired hepatic function.

A diminution of hippuric acid is said to be a symptom of hepatic deficiency, but as only 0.3 to 0.4 gram of hippuric acid is eliminated normally in the twenty-four hours it cannot be a test of great value. The presence of small quantities of bile pigment in the urine, which can be tested for very easily by means of Rosin's test, is almost positive proof of a congestion of bile within the liver. The examination of the feces is not as often carried out as it might be; absence of bile or disease of the biliary duct causes the acholic stool, and also increases the amount of fat. Especially in infancy and childhood is the pale stool of diagnostic import, it being positive evidence of an inefficient liver.

The toxicity of the urine has been demonstrated by Bouchard and his pupils. As the liver is the guardian of the body against intoxication, hypertoxicity of the urine may be considered as a sign of impaired hepatic function, but the methods at our disposal for testing the toxicity of the urine are unreliable.

There is a condition of hyperazoturia in which the elimination of nitrogen by the urine is enormously increased—not those conditions of hypercritical elimination which occasionally occur owing to some retention, but conditions in which the daily average elimination of nitrogen reaches 15 to 20 grams or even 25 grams. In these cases the percentage of urea nitrogen may be normal or even above normal. Cases are on record in which the percentage of urea nitrogen was as high as 98. The neutral sulphur is also diminished to less than 10 per cent of the total sulphur. In these cases there is probably a hypersecretion of bile, but this is difficult to prove. On physical examination the liver is usually large, hard, and tense. This condition occurs in gross feeders, the liver being stimulated to over-exertion, necessarily followed by cell fatigue, with consequent hepatic insufficiency and atrophic cirrhosis.

In the treatment of hepatic insufficiency it has to be remembered that any one of the functions may be insufficient, and therefore it is of importance that they should be differentiated by the foregoing tests, which will show the condition of the glycogenic, the biliary, the urogenic, the antitoxic, and oxidative processes.

There are a certain number of drugs which are used in hepatic disease somewhat empirically, no pharmacodynamic study having as yet been made of their action excepting in cases of natural or artificial biliary fistula. Opotherapy of the liver has not so far received much attention. Carnot, Gilbert, and Danis claim to have had good results from the use of liver extracts in atrophic cirrhosis, they having observed an increase in the biliary, urogenic, glycogenic, and probably also in the antitoxic functions. Spillman and Demange found that the albumin and urobilin disappeared from the urine. Carnot and Gilbert macerated 150 grams of fresh pulped pig's liver in 250 cubic centimeters of warm water for twenty-four hours, and administered it by the rectum with good results. Gallard and Crequy administered 150 grams of pulped liver by the mouth, which gave good results, the active principle apparently not being destroyed by the gastric juice; but it was too nauseous for most patients. There are preparations of powdered liver on the market, but they often produce stomach trouble.

Robin has studied the action of drugs in the treatment of hypertrophic cirrhosis in its early stages. Opium in small doses diminishes the glandular and digestive secretions, and is indicated in cases in which a hyperactivity of the stomach exists. Belladonna inhibits the functions of the liver, according to Riegel, Pawlaw, and Haidenhain. Arsenic in small doses has a sedative effect upon the action of the liver, especially in the glycogenic function, but its use for any length of time is contraindicated owing to its tendency to produce fatty degeneration. Mercury in small doses is a hepatic sedative; it does not increase the formation of bile. but stimulates Auerbach's plexus. Antipyrin and the bromides are also hepatic sedatives, and are especially indicated when the urea elimination amounts to 0.5 gram per kilogram of body weight. They should be administered in about 10-grain doses before meals, with a little sodium bicarbonate to prevent irritation of the stomach, and should be discontinued as soon as the urea elimination has reached normal. Sulphate of copper and lead acetate are also useful in hepatic hyperactivity. Potassium iodide in doses of 5 to 10 grains per diem is valuable, but the doses must be small, as the stomach in these cases is susceptible to its disturbing action.

Hepatic stimulants are more numerous and a little better known—benzoate of soda, salicylate of soda, Peumus boldus, sodium phosphate, aloes, jaborandi, podophyllin, and gamboge. Potassium iodide acts indirectly by dilating the blood-vessels and increasing the circulation. Benzoate of soda stimulates all glandular secretions, as also does sodium salicylate, the latter increasing the quantity of bile according to some observers. Peumus boldus is given as an infusion (Its alkaloid, boldine, is also much used.—Ed.); its principal action is diuretic, but it is also used to stimulate the liver. The action of sodium phosphate upon the liver is affirmed by Rutherford, but denied by Prevost and Binet, Baldi and Stadelman. Aloes in small doses is a hepatic stimulant, as it also podophyllin. Jaborandi in small doses is said to stimulate the liver, as it does all other glands; in doses of 1 to 2 grains of the powdered leaves it acts upon the liver and does not provoke diaphoresis and salivation. Sodium glycocholate mass in doses of 15

grains per diem stimulates the liver cells, increasing the flow of bile, thereby removing accumulated waste products, especially bilirubin. In cases with the icteroid coloration of the skin it will clear up the complexion in a few weeks. Especially it is indicated in hepatic colic; many cases are on record where its continued use has prevented the attacks of colic permanently.

The diet in disease of the liver is of great importance, the guiding principle being to obtain the maximum amount of nutrition with the minimum amount of physiologic work, thereby giving rest to the organ. Proteids are necessary for the proper nutrition, but in much smaller quantities than generally taken: Chittenden has shown that nitrogen equilibrium can be maintained in health with an intake of about 6.0 grams of nitrogen per day. The products of proteid metabolism—urea, ammonia, uric acid, creatinin, etc.—are more or less toxic and entail considerable physiologic activity on the part of the liver as well as upon the kidneys in their elimination. Fats are for the most part absorbed by the lymphatics, only a small quantity entering the liver by way of the portal vein; except in the suppression of the biliary secretion the easily digested fats, such as cream, butter, and the vegetable oils, are well borne in moderate quantities. The carbohydrates give but little work to the liver, their end products being principally carbon dioxide and water, both of which are easily eliminated.

The diet in hepatic insufficiency and hyperactivity should be moderate in quantity with a minimum of proteid, say about 6 grams of nitrogen per day, with some little fat administered in the form of cream, fresh butter, or olive oil, and sufficient carbohydrate to bring the total diet to about 10 calories per kilogram of body weight. The meat should be well cooked, preferably red meat, white meats containing more nuclein; gelatinous dishes, as calves' head and feet, etc., are to be avoided. Boiled fish, avoiding those containing much fat, are allowed, but shell-fish are debarred. One or at the most two eggs a day may be given, except in gallstone cases, when the cholesterin contained in the yolk may cause increased elimination by the bile. This is, however, very doubtful; experiments seem to prove that cholesterin is not absorbed from the intestine as such.

Milk, the diet usually prescribed, is not satisfactory and should never be given except with desserts. Fresh cheese may be given and is sometimes well borne, but only in small quantities. Of vegetables, peas, beans, scorzonera, salsify, and salads are the best; spinach and tomatoes contain too much oxalic acid. Vegetable diet increase the alkalinity of the plasma and often relieves the constipation, producing bulky stools. Vegetables containing sugar are only tolerated in small quantities, with the exception of Irish potatoes, which should be well boiled and mashed with butter. Toasted bread may be given, but pastry is forbidden; ripe or cooked fruits may be given sparingly. Water or very weak tea are the best drinks; the water should preferably be distilled, in which antisclerosis tablets (four to the pint) have been dissolved, this assisting in the elimination of the waste products. The total fluid taken in the twenty-four hours should be at least 1,500 cubic centimeters. In some cases all the meat should be boiled so as to dissolve out the extractives; no soups or broths should be taken. Probably more than anything else the reduction in the quantity of the food is the greatest therapeutic agent, most patients being or having been great meat eaters.

The following prescription is of value in atrophic cirrhosis: Strychnine sulphate, gr. 1-60; pulv. foliae jaborandi, gr. 1; sod. glycocholate mass, gr. 5; to make one capsule t. i. d. Nitrohydrochloric acid is often beneficial. In hypertrophic cirrhosis, acetate of potash and nitrat of potash are of value in one or two-grains doses. In hepatic colic sodium glycocholate mass in five-grain doses rarely fails to prevent a second attack if taken continuously.

THERAPEUTIC NIHILISM VS. THERAPEUTIC POSITIVISM.

By C. F. Gilliam, M. D.

Columbus, Ohio.

In selecting this topic for discussion I do not want you to think that it is my purpose to deal with it in an abstruse or scientific way, but purely, as I conceive it, from a plain common-sense standpoint. Neither is it the writer's desire to pose as a skilled therapist, nor as one having more than the average knowledge of therapeutic agents.

I have noticed, however, with much concern, a growing tendency, on the part of many medical men during the past few years, towards theapeutic nihilism, and I desire to enter my protest against it.

This tendency is especially noticeable among surgeons and those who devote themselves to research along other lines than that of therapy.

To judge from the expressions of this latter class, both in speaking and writing, one would be led to the belief that the only desirable qualification of a physician, is to learn the disease from which a patient is suffering and what are his prospects of dying. Diagnosis and prognosis are the *summum bonum* to be expected from the doctor, according to their idea, ignoring the fact that there is no excuse for the existence of physicians except for the prevention and cure of disease and relief of suffering.

While it may be a great satisfaction to the profession for a patient to die according to rule, it is no special comfort to the family and to the patient himself. He seems to be just as dead and stays dead just as long as if his case had not been properly diagnosed and prognosed.

When some enthusiastic member of the fraternity tells how he cured a patient with a certain kind of medicine, one of these "wise guys" will look at him with a sort of pitying contempt and say patronizingly: "You mean the patient got well while you were giving him the medicine." Intimating that the patient recovered in spite of the medicine instead of because of it.

Many of the younger men of the profession, of the ultra scientific type, ape some of the older ones in this respect, in order to show how conservative they are and that *they* are entirely too well balanced and broadminded to allow *their* enthusiasm to run away with their common sense. It is possible that in their cases the patients do recover in spite of the treatment. A man holding such belief cannot in the very nature of things be a good therapist. He lacks the temperament, the fine sense of discrimination in the use of medicine that is a part of the good therapist's armament. He is willing, too, in the power of suggestion which the natural physician—often unconsciously—exercises, and which is such a potent factor in the cure of disease. I am

firmly of the belief that the confidence with which medicines are used has much to do with the result. I freely acknowledge that many of these nihilists may have more text-book knowledge of the properties of many drugs, than his optimistic brother who uses them to so much better effect

Our scientific, therapeutic, nihilistic friend Osler, has added much to our knowledge of the character of disease, but little to our knowledge of the cure of disease. I'm glad he has left us. I have been afraid I might get right sick some time and that they would call him in consultation. I would so much rather have a good cheery country doctor. I know this is hard on Osler, possibly more than he can bear, but I trust that any one imparting my opinion of him, to him, will break it gently. Otherwise the shock might be so great that he would immediately seek the chloroform bottle, thinking that his days of usefulness were o'er.

But to return to my subject, I would not have you think that because I believe that suggestion or mental influence is such a powerful factor in the cure of disease that I am a Christian scientist. There should, in my belief, be a combination of the mental influence and physical means to secure satisfactory results. Outside the field of surgery, however, I can see no reason why the therapeutic nihilist should find fault with the Christian scientist. They are probably both frauds and humbugs, but some of the Christian scientists have the advantage of being honest in their beliefs. It has always been a mystery to me how a man can be conscientious and continue the practice of medicine when he has no faith in its curative power. And yet I have often heard doctors of supposedly good character, say they did not believe, or doubted very much, that any case of disease had ever been cured by medicine. Some of them are liberal enough to make exceptions of syphilis and malaria.

Speaking for myself, I am proud to say that I am not a therapeutic nihilist, but rather a therapeutic optimist.

If such a declaration evokes the pitying sneer, "That it is the optimism of ignorance," still, I would rather live my life and die in the belief that I had relieved suffering and benefited humanity by the cure

of disease, than to live and die with the feeling that my life had been that of the confidence man or bunco steerer. If it were a question of choice, I would rather be classed as an honest ignoramus than as a a smart rascal.

These may seem like pretty strong statements, but there are times when a rattling of the dry old scientific bones is needed. Give us live virile bones, covered with good red flesh and blood, instead of these old musty, dried up, dead ones.

I do not want to decry the student, the man of research; all honor to him, but he must not think that all knowledge lies hidden in the womb of the future and that nothing worth while has been discovered in the past. Neither must he think that all the wisdom lies in the medical schools and biological laboratories, where only cursory attention is given to therapeutics. Indeed, there are medical colleges in this country which have no chair of therapeutics, though curative and preventive therapeutics should be the sole aim of the profession of medicine.

Many of the advances in therapy have come from outside the teachers of medicine—indeed, most of them, like the Pharmacopeia, do not accept anything new as having virtue till it has been demonstrated about ten years, and consequently are always about a decade behind. "Hold fast to that which is good," is an excellent motto, but it ought not to prevent one from grabbing hold of every good thing that comes along. This business of climbing over the tail board of the band wagon after nearly everybody else is aboard, is a bad habit, to say the least. As Bill Nye would have expressed it: "They ought to open the top of their think tanks and allow a few ideas to percolate in occasionally."

Do not get the impression that I have an idea that we have arrived at the millennium in medicine. It is my belief that there are still vast unexplored and fertile fields for discovery and new and better methods to be found for doing the old things, but I am not one of those who believe that all the experience and research of the past ages have been valueless for amelioration of disease and human suffering. We will probably make great advances in medicine, as we will in the man-

ufactures and arts, but what we have already accomplished in this direction is not to be sneezed at.

As every one is aware, we have both a spiritual and a physical body, and they are interdependent, or mutually dependent upon each other. Neither can functionate nor exist without the other. For that reason I think that in therapeutics we must depend upon both spiritual and physical agencies for the cure of disease.

I liken an individual to the trolley car. The electric current is the spiritual body—unseen and incapable of analysis; the car and track is the physical body. You can stand on the track and turn on the current and you won't move a peg; you can take your seat in the car and unless the current is turned on you are equally at a stand-still,, but connect the current with the car—the spiritual with the physical body, and you move through space. It is the law of nature, it cannot be controverted. And this is my answer to both the Christian science who believe only in mental influence and to the man who has no belief in the power of suggestion.

Some of you may say, that in the case of the human being, the current is never disconnected and that consequently the spiritual agency is the predominating one. You forget, however, that the car wears out by use and that it is not repaired by the current, but by physical means and that the current itself is also kept going by physical agencies, so that on the whole the physical help seems the most important in carrying on the economy of life. But we must not forget, either, that as the electric waves are caught by one wireless telegraph station from another, when attuned in unison, so the electric ether passes from one body to another in affinity with it.

In the domain of vegetable drug therapeutics the medical profession owes more to the eclectic school than to any other, and I am glad to extend to these gentlemen my appreciation of their good work, though I confess that only a few years ago I looked upon them with something akin to contempt. So, too, with our homeopathic brother. The more liberal I become in my regard for the different schools, the more good I can see in their systems. Indeed, in serotherapy, which probably

holds more promise for profitable exploitation than any other, we are virtually adopting, only one remove distant, the homeopathic doctrine of "like cures like." We all act upon that principle in many diseases, and, if we could get together on the dosage, could travel along in double harness very nicely.

In my opinion the most striking advance in drug therapy in recent years has been in active-principle medication. It should not be construed, however, that those who make a specialty of this use nothing else, for they avail themselves of every definite chemical compound as well as all other agencies for the cure of disease which they think will be effective. In other words, they are eclectics in the true sense of the term. In addition to using from choice the active principles, i. e., the alkaloids, resinoids and glucosides in preference to the galenical tinctures and fluid extracts, they have formulated two or three certain well-defined rules or principles for their guidance. These are: "Clean out, clean up, and keep clean," and "Just dose enough."

Many have the idea that the alkaloids, being so powerful, are dangerour drugs to use. It is just the contrary. Being of definite strength, you know just what you are using and how to use it. How different the tincture or extract which may contain one per cent or five per cent of the active principle.

Many others, too, think that the alkaloidists use such infinitesimal dosage as to be closely allied to homeopathy. There is just where our, "Just dose enough," comes in. We use just sufficient to secure the effect desired, whether that be the one-hundredth of a grain or 100 grains. I would not hesitate to use 100 grains of quinine in a case of pneumonia, if I thought it would be safe and effective. As a rule, however, we begin with a minute dose, repeat it frequently, till we get holds more promise for profitable exploitation than any other, we are the effect desired and learn the tolerance of the patient to the particular drug given, and then continue it in such sized doses and at such intervals as seems indicated.

I have now been a user of the active principles for about five years, and the longer and more I use them, the greater my faith in their curative power. I mean by this that the patient not only gets well after the disease has run a much milder course, with an absence of many of

the distressing symptoms that we used to expect in such diseases as typhoid and pneumonia, for instance, but that a larger proportion of them are cured, or seemingly aborted, in from one-half to two-thirds the time that is considered the classical course in such diseases.

And when I say this, I am fully alive to the fact, that there is an optimism that makes men ridiculous, just as there is a pessimism that stops all progress.

I know that many physicians consider alkaloidal medication a mere "fad" which has been brought into vogue solely through advertising boosting. If a thing is a good thing it is no less valuable because advertised. It is a fact, however, that most men approach this system of treatment in a spirit of skepticism, and if it had no virtue, this method would long ago have been discredited. As a matter of fact, it is growing all the time, and those who use the active principles the most are its most enthusiastic advocates.

Why should not definite principles, whose physiological actions are known, be more effective than a large mass of stuff, much of it mere trash and inert, or may be containing antagonistic principles which retard or possibly nullify the action you are trying to secure?

"But," says some one, "if there is virtue in a plant it is in the whole plant. Nature in her unsurpassed laboratory has produced these things just as they ought to be used."

Has not Nature also distinguished between man and the beast, by giving us the power and intelligence to extract from Nature's laboratories those things which are most useful to mankind? I grant you that Nature, in some instances, may produce some things in just the state they ought to be used.

If we must go back to Nature in the use of drugs, why not in all things else? Why not go without clothes and shelter, save that of trees and of caves?

If you wanted a sky scraper, a buggy axle or a surgeon's knife you wouldn't expect to make them with a pile of iron ore in its native state. It is probable that you would send it to a furnace where by fluxing it with coal and limestone, thereby removing its impurities, and incorporating with it certain molecules of carbon and other substances,

you would secure steel. One of the most useful articles on the face of the earth, and yet something that does not exist in nature.

If you wanted some butter or cheese you wouldn't eat a cow, hide, horns, hoofs and all to get it. If you felt the need of a little alcoholic stimulant—merely as a bracer, of course—you wouldn't go out and chew up a corn stalk, together with the corn, cob, husks and leaves.

I'm inclined to think that these "back to Nature" fellows would be in a bad way to secure their tinctures, embodying all the virtues of the plant if they did not use one of the distilled active principles of corn with which to extract its virtues.

Therefore, I contend that the more minutely we can separate the active principles of the vegetable and mineral kingdoms, and discover the action they have on the human system in health and disease, the more advance we are making in the domain of therapeutics and in the cure of disease. And thousands of practicians agree with me.

To those who believe there has been no advance in therapeutics in 4,000 years, let them hug the comforting delusion to their souls. For *it is undoubtedly a comfort to have some belief.*

For those who do not believe in alkaloids and would throw away quinine, morphine, aconitine, atropine, cocaine, veratrine, digitalin, hydrastine, strychnine, pilocarpine, scopolamine, hyoscine, hyoscyamine, etc., and go back to the crude galenical preparations, we can only say, "Go your way and God speed you." There always has to be some one to bring up the tail end of the procession, and if we who are heading the advance guard do meet with a few more repulses and casualties in our onward march, we will at least be the first to reach the promised land. If there is any such a land.

THE NECESSITY OE STATE AND NATIONAL CONTROL OF TUBERCULOSIS.*

By J. P. Tamiesie, M. D.

Hillsboro, Oregon.

In preparing this paper I have taken the liberty to quote very exten-

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sively from an article written by Norman Roberts, of Fort Stanton, New Mexico. His views were so nearly in accord with mine in the matter of legal legislation, that I must confess that I have been able to add but little to his remarkable paper.

I have been impressed in the matter of control of tuberculosis in that it is almost futile to attempt to do very much under the present state of affairs. When we consider the number of tubercular foci existing, it is almost impossible to believe that we can in any way do much toward its control and cure. In those cases of small lungs, and limited chest capacity and irritable mucus membranes, we must expect re-infection of those cases which we may suppose to have been cured, unless we can limit the spread of the disease through the dissemination in so many ways of tubercular bacilli.

Some times it is well to look into the future in order that present action may be directed aright. I will endeavor to show by this process, along what lines we should direct our efforts and energies in the campaign against tuberculosis. I know well that the ultimate measures which I shall propose may be premature and impracticable today; yet I venture to say that before many years or months, the problem will be solved in the manner indicated.

To my mind, he, who by wilfully or ignorantly violating the laws of health, contracts a fatal disease, is morally guilty of suicide; and when, in addition, he spreads this disease to others, he is morally guilty of murder. This applies in a more or less degree in a culpable sense; and not as a punishment; but as a means of limiting the results of their wrong-doing, these persons should be, for a time, deprived of their liberty in order that the transmission of the disease may be checked, and that the patients themselves may have the best possible chance of cure and of restoration to their original usefulness.

A minority of the tuberculosis cases contract the disease as a result, principally of causes beyond their control. Some of these causes are infection in early youth, unusual and perhaps unconscious, susceptibility, and ingestion of an extraordinary number of virulent bacilli (an accident not unlikely to happen in these days of lack of sanitary system), and most important, the combination of ignorance poverty and

filth, for which there is no escape for an entire tenth of the population. This minority forms the class of unfortunate victims who also should be deprived of their liberty until they have recovered their health and are no longer a menace to others. It is no use to try and distinguish between the culpable and unfortunate, for the reason that punishment or consideration of any kind would be detrimental to the best interests of all concerned. There is only one way to handle the two classes, for every case presents the two elements, culpability and misfortune, in such complex combinations that it would be impossible, even if it were not useless, to try and analyze them.

The question is not "Why?" but "What now?" Not "How did it happen?" but "What shall we do?" What we have done, while it has been of great value in enabling us to find the proper course, has not been the proper course. We have indeed effected some reduction in the death rate, but much further reduction is not possible under the present system, or lack of system, whereas every sanatarian knows that the disease could easily be reduced to next to nothing in a few years and kept down to insignificant proportions forever after, if some capable sanitary general had but the necessary authority and resources. It seems to me that the way to exterminate this disease is to adopt the same measures that have been successful in reducing almost to zero the other great plagues which formerly ravaged the race. Compulsory isolation, disinfection and sanitation, in chief, have in civilized countries, practically banished from the list of causes of death such diseases as plague, typhus fever, cholera and small pox, and the same measures, suitably applied, would do the same for tuberculosis, but for the fact that public opinion, in its cheap sympathy for the whims of the tuberculous and in its heartless penny-wise pound-foolish effort to provide for its needs are neglecting to apply scientific legal methods for his care and for the eradication of the disease.

The term "cheap sympathy" aptly expresses the attitude which public opinion has all along held toward tuberculosis. We hate to worry the poor sufferer with sanitary ordinances, and so we look the other way when he coughs and spits and we meekly inhale or swallow his dry bacilli the next day. But we howl down any proposed legisla-

tion that would mean our paying for his spit cups or disinfection. We lie to him, or neglect to examine him thoroughly, when he consults us professionally about his "bronchitis," "malaria" or "dyspepsia," but it would be expecting altogether too much for us to surrender to the Government Bureau enough authority and money to put him where he would do no harm to his friends or relatives and where he would have a chance for his own life. We read with righteousness indignation of the cruel refusal of a hotel man to allow his place to become infected by harboring a dying tuberculosis sufferer half way across the continent from home, but we forget that we are living under a Government that is supposed to be civilized and that it is the duty of doctors and not of hotel men to advise and urge care for those who are unable longer to care for themselves. In short, we are willing to let the tuberculous do or have anything he wants, with entire disregard of its effect on the general welfare, so long as we individually, as citizens, are not asked to contribute anything for his benefit. Fortunately, there are signs of a change for the better in this attitude. We are still disgracefully cheap, but we are not so hypocritically sympathetic. We are beginning to say to the sufferer, "You are the one to stop the spread of tuberculosis. If you would stop spitting around promiscously the rest of us would be safe, but so long as you do this, the deaths will continue. Now stop it." Now this attitude is a great improvement over the other and has resulted in the saving of many lives, but we are going to be disappointed if we expect to eradicate the disease by any method based upon the principle of *simple prohibition*. The trouble with prohibition in any form is that it puts the whole task of the prevention, whether of disease or vice, on the shoulders of the weak and the unfit. One who gets pulmonary tuberculosis proves thereby that he was ignorant, and unable or unwilling to take proper care of himself even when well. When sick and infected with tuberculosis he is naturally still less able and responsible, and yet the prohibitionists expect great results from burdening his sinking shoulders with the additional duties of *voluntary sanitation* and isolation, without even getting him free spit cups or disinfecting material, or assisting him by compulsory measures.

Co-operation has of late years proved to be a great force for good

in many fields, and nowhere has it an opportunity for more revolutionary improvement of existing conditions than in the treatment of pulmonary or other forms of tuberculosis. In competition, each member of society does what he must in order to hold his place or earn his living. In co-operation, each does what he best can for the general good. In competition, the tuberculous individual works until he drops, infects the community, and goes with his infected family to the poor house. No attention is paid to him so long as he does his work, and as a result he dies, after scattering tubercular infection among his associates for months or years. In the case of the tuberculous, the competitive system makes it imperative for him to do the thing he is least able to do—manual work—and forces him wholly or partly to neglect the vital, important ones that he alone can do to prevent the disease and infection from spreading.

In co-operation the authorities would exactly reverse all this, to the incalculable benefit both of the sick and the well. The tuberculous subject does his full duty when he obliterates himself as a source of infection by either recovery or death, or keeps himself harmless to the rest of the community while sick by taking proper care of his sputum and other discharges. No one but himself can do these things, and so long as he has the disease this and this only should occupy his entire attention. The rest of the problem properly belongs to the community, and the community, if it does its duty, will see that the tuberculous person is relieved of all other responsibility. It will see that he is so placed that the infection of the well is an impossibility, and it will see that the sick have the best opportunities obtainable for recovery or for the easiest possible death.

How is this to be accomplished? Evidently the chief requisite is that in every recognizable case of pulmonary tuberculosis, the patient should be subjected to official orders as to residence and infection. Hence, private philanthropy, while cheap so far as the public treasury is concerned, lacks the one thing necessary to efficiency. Private philanthropy and the individual efforts of private practitioners have indeed accomplished a great good in reducing the sufferings of the tuberculous individual, and to a limited extent in reducing the number of

cases, by advice in prophylaxis; but such agencies will never rid the country of pulmonary tuberculosis.

Is it possible to rid the country of pulmonary tuberculosis? I believe that it is possible, as nearly possible as to rid it of smallpox. Undoubtedly, if we go about it in the right way. The army cleaned yellow fever out of Cuba within a year and it has never gone back, and under the present system of sanitation and prophylaxis will never go back. The eradication of tuberculosis, from the nature of the disease, would be a more tedious undertaking, but with the right kind of public support the National Public Health Service could, within ten years, reduce the National annual death rate from tuberculosis to less than one per cent of the present figures, and ultimately this disease, instead of being, as now, epidemic and responsible for one-seventh of all deaths would be represented by a few carefully guarded cases, mostly imported, the death rate aggregating no figure in the total.

But the reduction of pulmonary tuberculosis, while simple in principle, will be by no means simple or easy of execution. Haste must be made very slowly and carefully and public opinion forced out of its cynical belief in great National undertakings by hypocritic sympathy and its expensive cheapness. National and State legislation along proper lines, with recognition of health boards with proper authority, would represent the maximum of both efficiency and economy. In fact, the final running of the game to its last stand, the final extinction of the disease will require such unity of purpose and such close concert

State and National co-operation on a large scale is no longer a dream of visionaries, and its usefulness is no longer confined to politics, business or fighting. It is spreading to every department of human endeavor. Medicine has stood out against it longer than any of the other great professions, but even the doctors are beginning to throw up their hands and profess their inability to go alone. In the course of time, the bulk of the Nation's medical work will be done by an organized body or bodies of physicians paid from the public treasuries, just as the bulk of the Nation's school teaching has passed into the hands of the public school system.

But to go back to the immediate future, co-operation on the largest and best organized possible scale is indispensable if tuberculosis is to be eradicated

Finally, I would ask: "Can we control or cure tuberculosis if we do not prevent the indiscriminate and multitudinous sources of infection?"

TUMOR OF THE LADDER.

Mr. David Wallace refers to the difficulty of thoroughly extirpating neoplasms of the bladder owing to their common situation in the lower zone of the organ, this accounting for the frequency of recurrence. In cases unfavorable for extirpation, palliative operations should not be resorted to until the symptoms become so severe as to undermine the health of the patient. If sepsis, persistent hematuria, or great frequency of micturition, preventing rest and sleep, exist a suprapubic fistula should be established. The mortality of removal of benign growths has been 17 per cent. and of malignant growths 27 per cent.

SURGERY OF THE ARTERIES AND VEINS.

A most interesting and suggestive paper on this subject was read by D'Arcy Power, of London, before the International Medical Congress. For ligature of the bloodvessels he prefers silk to catgut or silkworm gut. The gelatin treatment of aneurisms has been unsuccessful in his hands, and his best results have been obtained from the insertion of iron rods and the use of electrolysis. In cases of varicose veins of the leg his preference is for the Trendelenburg operation if the vessel walls have not been too gratly thinned; if they have, or the saphena vein alone is affected, he resorts to extirpation. For the operative treatment of varicocele his operation of choice is ligature followed by excision of a portion of the spermatic veins. Professor Garre in presenting his own experience on this subject expressed a preference for ligatures of fine silk boiled in sublimate. In scrotal varicocele it is his custom to extirpate the entire venous plexus after applying a ligature high up.

Selected Articles.

DRAINAGE.

By J. D. Sternberg, M. D.

In this article we shall investigate drainage. It is hoped our conclusions, while not claiming to be either exhaustive or infallible, may be interesting as well as useful.

To my mind the subject of drainage is one of the most important things in surgery.

If I were asked what knowledge and what advantage experience gives to a successful surgeon, I would answer: first, a knowledge of how, when and where to drain. Drainage involves so many principles, requires so much judgment and produces such vital consequences, that a thorough knowledge of it is essential to successful practice, and we can apply it as nothing else in surgery to the comfort, welfare and safety of many of our patients. However, it is misunderstood and mistakes are frequent.

All of us have placed drains in cases, the courses of which proved that they were unnecessary. All of us have failed to place drains in cases, the courses of which proved that they were absolutely indispensable.

Let us first investigate the general indications and reasons for drainage.

In every fresh wound there is regularly an escape of a greater or less amount of a bloody, serous fluid from the divided tissues, open capillaries and lymph spaces. The quantity depends on the tissues divided, as well as the size of the wound. Nature has provided absorbents, which may, or may not be able to handle this exudate. In order to obtain primary union, wounded or cut surfaces must be brought into coaptation. The accumulation of any fluid which prevents this, interferes with the healing process.

Second, nature has provided against pyogenic bacteria a certain means of defense, which may, or may not be able to overcome an infection. Hence in case of pus formation drainage becomes necessary to assist nature by removing infectious matter from the body under such technical conditions, that protecting granulations can speedily line the avenue of discharge and place the abcess, so far as further entrance of toxines or microbes is concerned, practically outside of the body. The principle embodied in the old Latin saw, *"ubi pus, ibi evacua,"* is thoroughly incorporated in the teachings of modern surgery.

Granted these fundamental principles, let us draw some hard and fast rules for general surgery. I do not like the adage, "when in doubt, drain." Let us have more certainty.

When perfect coaptation, deep as well as superficial, has been secured, and when by the most scrupulous and painstaking observance of aseptic and antiseptic precautions, the surgeon is assured that his work is good, and the wound is clean and free from hemorrhage, means of drainage may be dispensed with. On the other hand, when one is not sure of his aseptic surroundings, when the tissues have been torn or bruised considerably, where the cut surface is very extensive, where there is considerable fat or tissue of low vitality, there should be no hesitancy or question as to the advisability of at least a temporary drainage.

In emergency cases, drain, for it is pretty well conceded today that a septic or dirty wound cannot by antiseptics be rendered absolutely and positively surgically clean.

If a cavity is unavoidable, drain. Where there is likely to be considerable oozing of blood, drain. Where tissue is exposed, that could not be expected to join in the normal healing process, drain. In operations on oedematous or infiltrated parts, drain. In operations near an infected surface or orifice, drain. And in the larger operations, whenever you remove the lymphatics, the only means of absorption, drain.

So much for drainage in general surgery. We will now take up the all important particular—the drainage of the peritoneal cavity. It is here that factors of such a nature as to require the keenest judgment

must be brought into consideration. It is here that a knowledge of how, when and where to drain saves lives. Here we must consider, first, the virulence of the pus encountered or anticipated; and, second, the ability of the peritoneum to absorb and eliminate it.

That pus differs in virulence no one will dispute. I have known a cupful of pus to have been left in the abdomen, after the focus of infection had been removed, and this with no evil result. I have seen one drop escape from an inflamed Fallopian tube, not well walled off by nature or sponges at the time of the operation, a fatal peritonitis ensuing.

That the peritoneum will take care of a certain amount of infection no one can doubt. For the wound in the abdominal wall to become infected from a source which does not even start a local inflammation of the peritoneum is of common occurrence. However, we must remember that the resistance of the peritoneum is an unknown quantity, and that there is no practical way of telling at the time of an operation the virulence of bacteria. Yet some surgeons after repairing or removing the source of the trouble, almost regardless of pathologic conditions, irrigate and close, making no provision for drainage. Others establish drainage at the least provocation. The rest of the profession in doubt as to the positive indications, either take a chance, or place drainage, saying, "if the course of this case shows it is necessary, all is well, and if it is not required, it can do little harm, and can be easily removed." Class No. 1, (those who practically never drain), occasionally close the abdomen and thereby lose a life. Class No. two (those who practically always drain), probably do not serve the public any better. They occasionally lose a patient because of their drains. Their patients are kept in the hospitals much longer, suffer much more, are more liable to complications, and often leave to return for a secondary operation for hernia, obstruction or fistula, and quite a proportion continue through life in a semi-invalid state.

Between these extremes there must be some reasonable and safe method to pursue in abdominal cases. Some firmer and better basis for the general surgeon than that founded on doubt. The case should either be drained or not drained. In the abdomen no one has a right

to take a chance. Uncertainty can be largely eliminated by a good operative technic. The peritoneum will befriend the man who does not violate the very principles of surgery in his work. Delicate structures must not be needlessly exposed or roughly handled. One must carefully wall off with gauze healthy tissues while dealing with an infected area. One must cover all raw surfaces with peritoneum. Bleeding must be stopped. And I believe irrigation in acute infectious conditions is contra-indicated.

Granted a perfected operative technic, we can make general rules as well for peritoneal drainage, as elsewhere.

When in operating you come upon an inflammation of the peritoneum acutely infected or extensively contaminated, with a turbid exudate, drain. If you encounter free pus in a case preceded or accompanied by a rise in body temperature, drain. But if the purulent collection is contained in a sac, which can be removed without rupture or contamination of the peritoneum, drainage is unnecessary. If a plastic fibrinous exudate has to be broken up in order to reach the seat of infection, drain. Whenever you note the circulation of the bowel interfered with, accompanying a septic process, drain; for in such a case the offensive and eliminating power of the peritoneum is below par. Whenever you cannot remove the entire focus of infection, for instance a badly inflamed fallopian tube, or appendix in a pus condition, drain. And right here it may be mentioned that infectious conditions about the appendix are usually more virulent than those about the tubes. Whenever completely infected, badly damaged or gangrenous tissues are removed from the abdomen the peritoneum is usually contaminated and drainage is required. Where leakage from a viscus (feces, bile or urine) is possible, and I wish to emphasize the "possible," drain. In cases of perforation, where the opening or openings cannot be found or sutured, drain. And remember that injuries of the intestinal wall, while they may not be severe enough to cause leakage, may permit mico-organisms to escape from the bowel and infect. In the partial removal of a tumor of size, or cyst with infected contents, drain, for the remaining inner wall of a cyst, besides secreting a fluid, could not be expected to readily unite with the adjacent tissues, and the cut

surface of a growth would probably bleed. In visceral wounds of the liver, pancreas, spleen or kidneys in which the parenchymatous hemorrhage cannot be completely controlled, or secondary hemorrhage is expected, drain.

Having decided when to drain, let us now take up the various methods. The simplest and most natural way of enabling secretions to escape from a wound is to leave it open, apply an antiseptic dressing and have the patient assume a favorable position. This method should be practiced more generally in septic wounds of small, or even moderate size. But in the drainage of cavities this open method is impracticable, for obvious reasons, and resort to artificial means is indicated. We believe that gauze wicks and rubber tubing are beyond question the most universally applicable and satisfactory materials for drains. The small drains made of gutta percha, catgut, horsehair or silkwormgut have but a very limited field. Glass, celluloid or the decalcified bone drains have, for good reasons, been practically abandoned.

Experiments with cups of pus, and observations in practice have proven:

First. That the capillary action of gauze depends on the character, i. e. specific gravity, coaguability, etc., of the fluid in which it is placed. It will readily raise water several inches, whereas, it cannot be depended upon to raise thick pus at all.

Second. Gauze moistened with sterile water will start to drain quicker, and will drain to a greater height than dry gauze. Gauze impregnated with an antiseptic, such as iodoform, will not drain as well as plain gauze.

Third. Gauze drains equally placed in an abcess drain in rapidity and quantity in proportion to their numbers. Hence in intensely virulent conditions, and in those cases where our patients are already septic, not one, but perhaps *fifty* gauze drains should be used.

Fourth. Gauze will not drain pus by capillary attraction to a height of over three inches. Hence it is obviously wrong to attempt to drain anteriorly with gauze pelvic or deep abdominal conditions.

Fifth. After a few hours a coagulation of fluid takes place in the meshes of the gauze, and instead of draining, drainage will be prevent-

ed. This is especially so when a gauze wick is wrapped with gutta percha tissue in the form of a "cigarette" drain.

Sixth. Gauze packed or rolled tightly will not drain efficiently. Packing will prevent hemorrhage. For instance, a septic uterus should be drained. Packing it is theoretically and practically wrong, for drainage.

Seventh. A ligature about a gauze drain interrupts its capillary action. Closing the wound tightly about a drain will have the same effect.

Eighth. It is possible to get a siphonage action with wet gauze, but it is doubtful whether this would be practicable in surgery.

Ninth. Tubes drain only by gravity. Hence when placed anywhere except in a dependent position, serve only as channels for superfluous discharges, or fluids forced outward by intra-abdominal pressure.

Tenth. Tubing smaller than the ordinary lead pencil should never be used. Coagulation of discharges quickly plug small tubes and renders them useless.

Eleventh. Gauze through tubing drains poorly, whereas, gauze wrapped about well fenestrated tubes, drains rapidly. This drain of gauze about tubing combines the good qualities of both, and eliminates several objectionable features of each.

Twelfth. And lastly, gauze possesses distinct advantage over tubing in the abdomen or pelvis, in that, with it you can wall off, or quarantine so to speak, septic foci from the general peritoneum.

In making provision for the escape of pus, blood or serum the most efficient point, i. e. the most dependent point is to be preferred. This may require another incision, but it will usually hasten healing; often place the more objectionable scar in a less conspicuous position, and in abdominal cases go far to prevent post operative hernia. To this end it is advisable to drain the female pelvis through the vagina, and some appendix cases through the flank. In amputation of the breast an opening so placed as to drain the axilla is best. If the line of incision does not include a dependent position, a counter-opening should be made. For instance, in the base of the posterior flap of an amputation.

Furthermore the position of the body can facilitate drainage. In operations on the lower portion of the abdominal cavity, we take the side of those who believe the Fowler position is of real value. For like purpose different attitudes and postures of the body and limb, depending on the position of the abscess, can be assumed to advantage.

In pus cases a few hours after drainage is established the condition of your patient should tell you whether it is efficient or not. In the minor cases, where there has been an abscess, pain, heat, throbbing and tension should diminish. In those cases profoundly septic, it is a question of whether the organs of elimination are able to get rid of the poison already in the blood. The time for the withdrawal of the drainage tube and wicks depends on the character and quantity of the discharge. In non-septic cases drainage can usually be dispensed with in from one to three days. Any drainage material acts as a foreign body, and consequently more or less as an irritant. Certain tissues tolerate this better than others. Where there is a profuse discharge a drain of some form, or an opening must remain until the wound has practically ceased to discharge. No wounds require greater care than open septic ones. and to promote rapid healing ,dry cleansing is to be preferred to irrigation. All fluids, which by their caustic effect might interfere with granulations are to be avoided.

Tubular drainage of the abdomen should be removed early for fear of fistula, as a result of pressure necrosis. Both strips of gauze and tubes should be shortened, and removed one after another, as the indications for drainage disappear. Secondary suturing of abdominal wounds should be done to prevent hernia. Gauze in abdominal cases is easiest removed on the sixth or seventh day, well organized adhesions about the strips by this time beginning to slough. Prior to this time the dry ends may be moistened with sterile water. And in case the gauze becomes impregnated with coagulated pus, blood or fibrin, it can be rendered efficient again in situ by the use of diluted peroxide of hydrogen.—Medical Sentinel.

SOME FACTORS IN THE SURGICAL PHYSIOLOGY OF THE CIRCULATION.

By George Crile, M. D.

Cleveland, Ohio.

In making our diagnosis, in estimating the operative risks, in the course of the operation itself, and throughout the after care of our patients, we have constantly to draw upon our knowledge of physiologic laws and factors. A thorough knowledge of normal physiologic action is of course essential, but this alone is not sufficient. Our cases present conditions in which the normal is altered and modified by physiologic changes, and it is through a familiarity with the reaction of the circulatory and nervous mechanisms to these abnormal conditions that we are enabled to foresee and forestall crises, or to meet them successfully when they do occur.

In surgical practice we are concerned chiefly with the integrity of the circulation and I shall mention in brief some of the factors that modify or effect the circulatory system.

Heart: As a muscle the heart is probably the most highly organized and performs the most important function of the various muscles of the body. It has a wider range of compensation and certain other characteristics and limitations that are of great importance surgically. In its response to trauma of various kinds it shows marked individuality. A stab or gunshot wound may in one instance cause only temporary alteration in function, while in another immediate death may ensue. Direct manipulation of the heart often has but slight effect, or it may cause inhibition and irregularity to appear at once. Experimental research has shown that the collapse or death following the short rib or so called "solar plexus" blow is in no way connected with the solar plexus, the diaphragm or the splanchnic nerves, but is due to mechanical inhibition of the heart itself. No drug has as yet been found that will protect the heart against the important alterations in function that result from mechanical manipulation or trauma, neither are these phenomena modified by anesthetic. Therefore in operations upon or about the heart prevention is the best treatment.

When the heart muscle is damaged or its nutrition impaired by acute infections, anemia, arteriosclerosis, advanced age, or when valvular lesions, fatty degeneration or the "athlete's heart" is present, physiologic research and clinical experience have shown that it is much more susceptible to trauma and mechanical interference than in the normal organ. One would hesitate much more to perform an operation on a senile heart than upon that of a young adult. Acute dilatation and paralysis of the heart presents a phase of surgical physiology that demands special attention. It is established that the output of the heart is dependent upon the blood pressure in the large venous trunks and not directly upon the arterial pressure. An increase in the amount of fluid entering the heart causes an increase in its work in geometric ratio, that is to say, trebling the amount of fluid causes nine times more work, not three times. This together with the fact that the heart is functionally impaired immediately upon the diminution of its own blood supply through the coronary arteries constitutes the most important group of physiologic factors relating to the heart in the operative part of surgical practice.

In an acute hemorrhage when the heart is functionally impaired by a lowered coronary pressure and by blood of poorer quality, if the amount of fluid is suddenly increased, as by a rapid intravenous infusion, the heart's work is increased out of proportion to its vitality, and it may suddenly suffer an acute dilation and an immediate paralysis ending in death. So also if the intrapulmonary pressure is rapidly increased, as in certain methods of positive ventilation of the lungs in artificial respiration, the right heart may be unable to empty itself, the blood accumulates and the work of the right heart is doubled, trebled or quadrupled in a moment. This would cause a lowering of the nutrition of the cardiac muscle, would diminish its power of contraction, and might cause an immediately fatal dilatation and paralysis. When these crises arise, either from an increased amount of fluid, as by an unwise intravenous infusion, from obstruction of the pulmonary circulation or otherwise, the removal of the cause is the first consideration. The patient should at once be put in the feet-down inclined posture. This causes the blood to gravitate from the heart into the splanchnic area and large venous trunks of the lower

extremities, thereby partially relieving the over-distension of the vessels. Following this, rapid massage of the heart by rhythmic pressure upon the thorax over it, should be done and artificial respiration maintained. In addition, if it can be done quickly enough, extensive venous blood-letting from the jugular vein may be effective. The efficacy of these measures has been well established from both the experimental and clinical standpoints.

In one of my own cases, in the midst of an operation such a crisis arose. An acute dilatation was at once recognized by the extensive venous congestion, lividity and simultaneous collapse of the pulse. It was during an operation on the neck. The jugular vein lay in the field and was at once opened, and there was a gush of venous blood. During the same time vigorous heart massage was carried out. The heart, which had stopped in paralysis, within a few minutes again beat regularly. The operation was completed and the patient recovered.

This plan of treatment may be the means of saving a life in certain anesthesia accidents in which, as shown by Leonard Hill, the heart muscle being impaired by the anesthetic, acute dilatation and paralysis ensues.

Cerebral anemia has so long been regarded in surgical traditions as the one condition to treat that the rational management of the heart has not received the attention its importance deserves. The differential diagnosis between collapse of cerebral origin and the collapse of acute dilation of the heart must be prompt and accurate, as the best treatment for the one is the worst treatment for the other.

The powerful influence which respiration exerts on the circulation must be borne in mind when performing operation on the thorax. The respiratory pumping action is of first importance in filling the right heart. In certain operations upon the thorax, when the respiration and hence the supply of oxygen is interfered with, it is well to take every precaution to see that the heart receives its normal quota of oxygen to meet the circulatory crises which thoracic operations so often entail.

Before every operation and every anesthesia, one must take as accurate a physiologic stock as possible of the cardiac reserve force. In

the presence of any organic lesion or functional disorder of the organ the margin for safe operative disturbance is proportionately diminished, and one must be prepared for sudden impairment or collapse. If the physiologic status is accurately determined and the operative effect controlled, the demand upon the heart may be made to fall within its physiologic margin of safety.

The factors that most greatly disturb the heart are sudden changes in blood pressure or sudden application of trauma or manipulation. In this connection, too, it is well to remember that the heart endures manipulation and trauma of its apex and ventricles much better than of its base, including the auricles and large venous trunks. Operative procedures directed against the heart should be gradually approached, allowing time for compensation and recovery from slight manipulation, and then should become gradually more extensive until ultimate aim has been reached. In this way the heart is capable of withstanding a surprising amount of trauma and manipulation.

After collapse with sudden cessation of its beat, the heart may respond to proper treatment after a protracted quiescence—even of fifteen minutes. It is during these crises that one is apt so often to fall into the error of administering an over-dose of saline infusion.

In any condition of impaired function or threatened breaks in compensation a preoperative treatment with digitalis or strophanthus with or without nitroglycerine may effectively improve the heart action, and thus increase the margin of physiologic safety.

Vasomotor System: The importance of the surgical physiology of the vasomotor system is worthy of a more detailed consideration and study than space will here permit. The height of blood pressure is due primarily to the action of the vasomotor center, which sends its impulses through the vasomotor nerves to the vascular periphery and controls the caliber of the vessels. The rise and fall in the blood pressure depends mainly upon the increase or decrease in the action of this center. The beat then, roughly speaking, energizes the blood stream, supplying artificial force to overcome the peripheral resistance and return the blood to the heart.

While cessation of the heart's action means death, it is no less

true that cessation of the activity of the vasomotor center causes death quite as certainly but not so instantaneously. It is highly probable that from the vasomotor center more often than from the heart arises the causes of surgical death. As a common example may be mentioned the paralysis of the center from operative or accidental trauma, usually designated as shock.

In many of the acute infections a toxic over-stimulation causes a break down in the center, and while it is true that in the majority of cases life is terminated by the combined effect of a number of factors, such as cardiac, renal, respiratory, etc., the vasomotor is probably the dominating factor.

In acute hemorrhage the vasomotor center is depressed on acount of its diminished supply of nutrition and of oxygen. The short pulse wave is indicative of the relaxation of the vessels which in turn is caused by a diminished action of the vasomotor center. In a slow, continuous hemorrhage the nutrition of the heart muscle suffers more acutely and this enters later as an important factor in the causation of death.

In asphyxia of any grade the vasomotor center is stimulated, producing a higher blood pressure and a longer pulse wave, characterized clinically by a slow, full pulse. This is often deceptive, giving a false sense of security, so that what sometimes seems to be a marked improvement in the pulse is, when properly interpreted, a grave symptom.

The vasomotor system is the principal means of compensation in all the various circulatory crises occurring in the normal and pathologic state. When the blood pressure is falling in one territory an increased vasomotor action in another may compensate for it; dilatation in the skin area is compensated for by contraction in the splanchnic area and *vice versa.*

The splanchnic area and the brain have a certain and most important interrelation. To this subject Cushing has recently made important contribution. When the intracranial tension is increased, threatening to cause anemia of the vasomotor center, this center sends out strong impulses to the splanchnic area, causing extensive vascular contractions there, which in turn produce a marked rise in the general blood pressure, thus reestablishing the amount of circulation in the

vasomotor and other centers required for their normal function. In increased intracranial pressure from hemorrhage, abscess, depressed bone, tumors, and other causes, unless other factors interfere, the general blood pressure usually is increased. The blood pressure which normally is appropriately 120 to 135 mm., has been raised in pathologic intracranial pressure to 425 mm. mercury. Thus the action of the vasomotor system may be seen to be one of the strongest diagonstic features in certain of the common forms of brain injury and disease. We may say that in general a full bounding pulse indicates an increased action, and a soft pulse a diminished action of the vasomotor center.

Recent studies have shown that the vasomotor center is almost specifically affected in certain infectious diseases. Those of greatest interest to the surgeon are the various infections caused by pyogenic organisms. In most cases of acute infection the blood pressure is raised because of a toxic stimulation of the vasomotor center. While this observation is as old as the literature of surgery, it is quite possible that we may now make some new applications in surgical diagnosis and prognosis. In certain other acute diseases, notably in typhoid fever, the toxic products depress the vasomotor centers. In the course of typhoid fever an acute pyogenic infection may, on account of the perforation of the bowel or rupture of an abscess, be introduced. The circulation will then be subjected to antagonistic factors, the one tending to lower the blood pressure, the other to raise it. Since the depressed vasomotor action due to the typhoid toxins is the standard, up to the time of the pyogenic infection, one would expect a rise after such infection. This has been repeatedly noted. In a number of observations in the acute infections, such as peritonitis, the blood pressure is almost uniformly high in the early stages, the mean in adults probably being 150 to 160 mm., while in typhoid observation on 150 cases it is shown to be, on the average, in the first week 104 mm., the third week 98 mm. mercury.

In typhoid the pulse is of large volume, soft and slow, in peritonitis it is of small volume, hard and rapid; in typhoid dicrotism is usually present, in peritonitis rarely or never; in typhoid the pulse wave

is long, in peritonitis it is short; ii typhoid the capillary pulse is frequently present, in peritonitis rarely or never; in typhoid there is usually an increased blood supply—frequently not well oxidized—to the face, the front and sides of the neck, and the upper part of the thorax, giving an almost characteristic pallor.

The principal cause of the antithesis in these two important diseases is the characteristic effect of their toxins upon the vasomotor center. Among the other evidences of typhoid perforation then, the appearance of these circulatory alterations may be of very great assistance in the diagnosis.

In our own experience, in six cases of peritonitis following typhoid perforation a rise varying from 8 to 40 mm. of mercury was noted, the rise in the blood pressure seeming to occur very soon after the perforation.

In a typhoid ward where blood pressure records are carefully made as a routine, sudden alterations may be of extreme importance in assisting the diagnosis. It must be noted here, however, that the vascular system may be overwhelmed by the dosage of toxins in an acute infection, the blood pressure fall, and immediate collapse follow; furthermore, the shock due to the irritating effect of the toxins upon the peritoneum may also enter as a factor. This, if marked, and if other factors can be excluded, may be quite as important as an increased rise in the blood pressure.

THE TECHNIC OF ABDOMINAL SECTION.

Dr. Rankin Lyle has lately reported a series of 50 consecutive abdominal sections with but one death. These consisted, for the most part, of ovariotomies, hyterectomies, salpingectomies, and salpingophorectomies. For buried ligatures and sutures catgut was used; for superficial sutures silkworm gut. Vaginal antisepsis was omitted, and the abdominal wound made as small as possible, and united by three or four layers of sutures. The author places the greatest importance in the technic upon simplicity, few instruments and appliances, limited abdominal incisions, and the avoidance of drainage.

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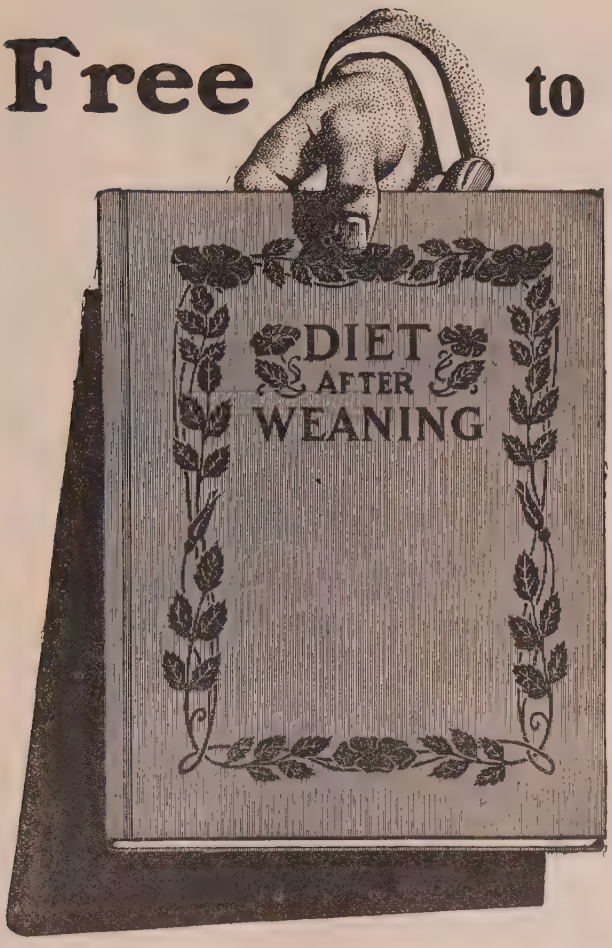

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Physical Basis of Lightning Dread.

The mortality statistics of the last five years show that the average annual number of deaths from lightning was more than 200. The report of these sad accidents is read with terror, yet with avidity, by many persons who have an inordinate dread of lightning and the consequence is an increase of their lightning phobia, so that toward the end of the summer a thunder storm becomes a source of positive dismay. It is usually considered, remarks the Journal of the American Medical Association, that such persons have an unreasoning dread of lightning, but an analysis of cases soon shows that most of them are

sensible persons under ordinary conditions, though they lose all their confidence in themselves almost at the first sign of a lightning storm.

There is no doubt now in the minds of those who have studied a number of those cases closely that the dread of lightning is a true phobia, though there is in it very probably much more of a physical basis than there is for the most of the unreasoning dreads which are called phobias. While the sufferers from mysophobia, the fear of dirt, which makes people wash their hands dozens of times a day, have the excuse that it is because they dread the presence of microbes that they wash so frequently, it is well known that such cases occurred long before the present state of acute attention to microbes so characteristic of our day developed. There is here simply an imperative idea that they must not let themselves be contaminated by dirt, an idea from which they can not get away. Most of the other phobias are of the same distinctly psychic character and can be overcome only by suggestion, though, as a rule, the amelioration of the person's health brings about an improvement in the annoying symptoms. In all of these cases there is a distinct condition of what used to be called neurasthenia, though in recent years there has come to be a very general realization that, owing to the preponderance of the mental element in these cases, the term psychasthenia or phrenasthenia is much more expressively descriptive.

It seems clear, however, that there is something in the physical condition of the elements just before and during a thunderstorm which affects certain people very unfavorably. It has been suggested that the disturbance of the ether which causes telegraphic instruments to be less easily used than before and which so seriously disturbs long-distance telephone lines may have its effect also on the brain neurons. That the neurons may affect and also be affected by vibrations in the ether is well recognized. When as president of the British Association for the Advancement of Science some years ago Sir William Crookes took "Telepathy" for the subject of his address, he suggested as the only possible explanation for certain well-recognized phenomena of the communication of minds at a distance from one another, the traveling of impulse from one set of neurons through the circumambient ether to the other set. Only such minds can thus communicate as have the

same moment of vibration, just as only such wireless telegraphic stations can communicate with each other as have their sending and receiving instruments properly attuned to each other.

It would seem that the minds of persons who suffer from a great fear of lightning become primarily affected by the magnetic disturbance in the ether which sympathetically is communicated to their neurons. In spite of every reasoning, then, a panicky condition develops to a great extent beyond the control of the will. Under these circumstances reassurance is given to such persons by a straightforward explanation of the reason for their phobia in the physical affection which exists in the underlying basis of mental operations. This proves a very valuable suggestion of therapeutic value even in the worst cases. In some individuals it becomes almost curative in effect, even though the physical dread of lightning does not disappear. It has been suggested that this method of mental therapeutics would save a great deal of suffering in many cases.

The Insurance Examination Fees

Scarcely any business matter has attracted more attention of medical societies—State and local—during the past year or so than the effort of some regular life insurance companies to reduce the minimum fee from five to three dollars for each examination for insurance. With very general accord, the profession has resented such attempts, by adopting resolutions favoring five dollars as the minimum fee for such services.

Life insurance companies, says the Virginia Medical Semi-Monthly, are business corporations, organized for the purpose of making money. Their estimates for carrying on business take into consideration the cost of solicitors and other expenses as practically consuming the entire premium for the first year. Actuarial estimates are made as to the life of policy holders, and premiums are calculated, after the known loss of the first year, which allow a very safe margin of profit to the companies. As a rule, the profits on the bulk of business extending over a term of years—even in companies that call themselves mutual —aggregate enormous sums of surplus and reserve. And this occurs,

too, even after paying, in some instances, extravagant salaries to certain preferred officers, the declaring of ample semi-annual or annual dividends to stock-holders, etc. Recent searching investigations of the affairs of some of these companies prove the correctness of these statements. In short, regular life insurance companies are organized and conducted—not for fraternal or benevolent purposes, but for money making. That these companies, organized with sufficient capital and conducted on proper business principles do make money, there is no question. The boast in their advertisements, after paying all loses, expenses and dividends, is their financial strength.

It thus appears at the outset that the doctors engaged by such companies as medical examiners are dealing with well to do, money making—perhaps wealthy patrons. While we are by no means in favor of extortionate charges, it is high time the doctor should be demanding proper compensation for services rendered such patrons. At $5 as the proper compensation for services rendered such patrons. At $5 as the fee for each examination for life insurance, even if the examiner has one case each business day of the year, his income would be only about $1,500 per annum. But as a rule, no one general medical examiner for one company has more than 30 or 40 cases a year.

If the examiner is a general practitioner—whatever else may be his engagements for a definite hour—he has to surrender them to meet the claims of the Insurance agent or solicitor; for prompt response to the call of the insurance agent or solicitor is an essential requirement placed upon the medical examiner. If the number of cases to be annually examined were enough to pay a compensative salary to any one doctor—enough to take him out of the field of general practice and establish him as a specialist as life insurance examiner—the question would be a different one. But with the exception of a few large cities, such a thing is utterly impracticable.

People who are not regular patients, who come to the doctor's office (because of some special reputation he has for such work) for a thorough examination of heart, lungs, etc., and to get a written opinion of the same, expect to pay a minimum fee of from five to ten dollars. But even more work is expected of the insurance doctor who has to

answer in detail in writing many questions on the application blank. If the medical examiner's work is conscientiously done, five dollars for each case is small enough fee.

We recognize that there is a shoddy class of doctors in many communities whose examinations of applicants for insurance are so superficial as to make their opinions of the case, if they really have any, perfectly worthless. The opinion of such a doctor, of course, is not worth even the ordinary clerical fee for writing out the policy. The fault here is in the selection of the examiner. Our remarks on this subject, however, apply to the properly selected and well qualified medical examiner. A capable, conscientious medical examiner saves the life insurance company he represents many thousands of dollars. And a minimum fee of five dollars for each insurance examination is, in all conscience, small enough.

In no sense should regular life insurance companies be compared with reputable fraternal or benevolent orders. In such orders, money making is not an object. From the medical examiner's standpoint, their work is practically done as that of other officers of the Lodge. The salaries of none of the officers of such fraternal orders are compensative for the amount of fraternal or benevolent work they do for the sake of their lodges. Their pay is intended rather as an honorarium than as compensation. Such a matter should not be considered in the discussion of the one under present remark.

Modesty, Energy.

This world's degenerating into an awful scramble, observes the American Journal of Clinical Medicine. Its God is success, and none other does it worship. Force alone wins. We're just a lot of big gasbags, all distending at once, and the one that has the toughest cover and the strongest gas pump swells till he fills the room and squeezes all the rest flat. Power is the goal and strength the means. The day is gone when modest worth sits in the corner and waits till the mighty spies him out and takes him by the hand and seats him at the table

among the great. It is not much of an ideal anyhow, since it only looked for a patron to be boot-licked.

The heroic type is now in evidence, the gaint who stalks into the banquet hall and with a rude buffet displaces the owner and seats himself in the chair at the head of the table, challenging a stronger to dispossess him. We may not like it, but it's true nevertheless.

It's all right. Gigantic as he may be, he is after all but one, and the many always outrank the one. He must convince the rest or they will not accept his rule. And to hold power long he must make the masses see that his worth is solid and enduring. Rings and intrigues may apparently succeed for a time, but sooner or later comes a Sedan.

The world is to the strong, the fat of the land to the kicker.

The modest who has so good an opinion of himself for qualities the world has been unable to see, and who has had too little force to push to the front, may sit in his little corner and mope, but we have no time to bother about him.

Make a just estimate of yourself, realize the niche in life you are best fitted to fill, and then fill it. Don't mind crowding the other man; if he is the best you can't crowd him; if you are the better he ought to be crowded.

But don't worry over lack of appreciation. The world is wonderfully clear-sighted, and the least pretense or effort on your part to make yourself out better than you are will be detected quickly, and you will gravitate to your level.

If you find that the young scrub, fresh from medical college, is running into your practice, don't get huffy and abuse him, but ask yourself whether he is not perhaps better equipped than you, with more modern means and methods. He whisks past in an automobile while you plod along with old Dobbin—and he saved that child by a tracheotomy you were too slow to reach. He uses modern scientific remedies, and you will not listen to us. Brush up. Dust the cobwebs out of your brain. Get a move on and hustle, or else take a back seat and keep quiet.

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COUNTIES WITHOUT POWER OR LIABILITY AS TO SMALLPOX.

The Supreme Court of Wisconsin says, in the case of Martin vs. Fond du Lac County, that there is no common-law liability of counties to care for the poor or to conserve the public welfare by preventing the spread of contagious or other disease or caring for those afflicted therewith. Counties have no power whatever, as indicated, except as derived from the written law. There is no statute in Wisconsin imposing the duty on counties, primarily or otherwise, to take charge of and care for persons because of their being afflicted with smallpox. The statute, section 1416 of the Revised Statutes of Wisconsin of 1898, clearly imposes that duty on the particular subdivision of the county wherein the necessity arises, whether in the particular instance the person is a resident thereof or is a pauper or stranger. It provides that when any person shall be infected with the smallpox "the proper board of health" shall act in the matter. The term "proper board of health" plainly restricts the liability as stated, because there is no statute providing for county boards of health.—Journal Amer. Med. Assn.

MUCO-MEMBRANOUS TYPHLO-COLITIS.

In a contribution presented to the Paris Academy of Medicine, Professor Dieulafoy called attention to the frequency with which appendicitis was mistaken for muco-membranous typhlocolitis, this condition being only recognized in the course of operation. The symptoms of typhlocolitis consist in general of alternate attacks of constipation and diarrhea and the discharge of mucus, shreds of membrane and a gritty material, but it is the pain in the right iliac fossa which leads to the disease being mistaken for appendicitis. It is particularly important to recognize the existence of this form of colitis because it is not in any way benefitted by appendectomy.

Miscellaneous Notes.

Members of the profession are warned against the operations of one G. E. Simpson, who is fradulently taking orders for Surgery Gynecology and Obstetrics, published by the Surgical Publishing Company of Chicago and under the managing editorship of Franklin H. Martin, M. D.

Many doctors have already been victimized by this man to the extent of paying cash for orders for a journal or giving him checks payable to his own order; and this notice is published in the interest of the profession and for the purpose of putting a stop to his further operations.

Secretaries of local medical societies are requested to warn the members of their societies against him.

In a discussion on the treatment of hemorrhoids before the International Medical Congress, Dr. Kojouharoff expressed a preference for the clamp and cautery operation. This he has modified for the prevention of secondary hemorrhage by the insertion of one or two or at the most three sutures in the cauterized area. These prevent separation of the wound margins and also shorten the duration of healing. Dr. Schloffer avoided hemorrhage after the cautery operation by great care in replacing the cauterized stump and by not introducing gauze into the rectum. Dr. Napalkoff considered resection of the lower segment of the mucous membrane as the only radical operation. Circular resection was indicated in the majority of cases as it was easily carried out and protected against recurrences.

TREATMENT OF OLD LUXATIONS OF THE ELBOW JOINT.

In the Surgical Clinic of Koeigsberg, as reported by Dr. Bunge, 40 cases of this kind have been operated. In most instances the dislocation was attended with periosteal laceration and chipping off of the

bony processes. The treatment consisted in a longitudinal anterior incision on one or both sides down to the joint, and division of adhesions and reduction. In two cases a posterior transverse incision was made. Restoration of function in 17 cases was excellent, but in the others complicated by injuries of the bone and periosteum, unsatisfactory.

OVARIAN CYSTOMA.

Dr. H. McNaughton-Jones reported before the British Gynecological Society the successful removal of a pseudo-mucinous cystic adenoma of the ovary, weighing 12 pounds and containing 30 pints of fluid. He summarizes his views as to the treatment as follows: Early removal is indicated in cases of ovanian cystoma, especially in the presence of ascites. If possible, the tumor should be removed without rupturing it or injury of the peritoneum. If rupture occurs, the pelvis should be thoroughly irrigated with a saline solution. In all doubtful cases, and always after the pause, it is advisable to remove the other ovary. An examination o contents is of importance to determine the nature of the growth

ACUTE PERFORATION OF THE GASTROINTESTINAL TRACT.

Professor Tillmann, of Cologne, in a paper read before the International Medical Congress, at Lisbon, reported 53 cases of acute perforations of the stomach, intestine, and gallbladder. From the results achieved he believes that the advance in the treatment consists in early operation. One of the questions entering into the operative treatment is whether irrigation of the peritoneal cavity with saline solution is necessary. Thus far Tillman has been led to prefer dry cleansing. In excising an ulcer of the stomach a wider area must often be removed owing to the protrusion of the mucous membrane around the ulcer. Recovery took place in all of his cases of perforation of the appendix which were operated upon within 60 hours Of

his 8 cases of perforating gastric ulcer one recovered which was operated upon within 6 hours, while the others died from hemorrhage due to a second ulcer, from peritonitis, and pyemia.

EPONYMS OF DR. BYRON ROBINSON.

No American anatomist or surgeon is wider known to the medical profession than Dr. Byron Robinson. As the celebrated surgeon, Dr. Christian Fenger, once remarked: "Dr. Robinson's researches have made his name known wherever scientific medicine is taught. His work is stamped with a remarkable originality. He has a genius for labor and for the accomplishment of great tasks. By persistent industry in experimental research he has indelibly fixed his name in the foremos trank in gynecology and abdominal surgery. He is a rapid and skilful operator."

Professor Senn says that Byron Robinson's work on the histology and surgery of the peritoneum is epoch-making.

Of the eight volumes of standard medical books written by Dr. Robinson, none will live longer than the one on the Utero-Ovarian Artery, which is illustrated by large, handsome charts. The medical profession has honored Dr. Robinson by designating this artery "The Circle of Byron Robinson." The utility of this arterial circle will aid progress in the study of clinical gynecology.

Dr. Robinson needs no introduction to the medical profession as regards the value of his productions. They are denominated original, unique and classic by the ablest of authors. By his zeal and energy, he has made for himself many eponyms, which will last as long as medicine lasts.

The list of eponyms credited to Byron Robinson by Dr. Robert S. Gregg in the *"Medical Fortnightly,"* are as follows: "Abdominal brain of Byron Robinson (ganglion coeliacum); Circle of Byron Robinson (utero-ovarian artery, with part of the aorta, common iliac and internal iliac); oligemic uterine zones of Byron Robinson (central longitudinal axis of the uterus, center of fundus and lateral borders of cervix); cervical loop of Byron Robinson (a loop of the uterine artery lying adjacent to the cervix); triangles of Byron Robinson

(uretero-venous triangles composed of the ureter, renal and ovarian (spermatic vein); automatic menstrual ganglia of Byron Robinson (located in the walls of the uterus and oviducts); pelvic brain of Byron Robinson (cervico-uterine ganglion)."

However, we know of two other anatomic eponyms which should be credited to Byron Robinson. In the journal of *American Surgery and Gynecology,* Dr. W. E. Holland several years ago ascribed an eponym to Byron Robinson in "The gastro-hepatic circle," which is composed of the anastomosing gastric and plyroic arteries, with a segment of the hepatic artery. Also Byron Robinson discovered by a series of dissections on the ganglion coeliacum (abdominal bram) that a constant ganglion existed in the course of the phrenic artery on each side of the body. He designated it the ganglion of the phrenic artery, *Ganglion arteriae Phr nicae.* Hence the eponyms, "the gastro-hepatic circle" and "ganglion of the phrenic artery" should be added to his list. Byron Robinson has worked out these eponyms, during the past fifteen years, by numerous and extensive disseceions in the abdomen of man and animals. The value and utility of Byron Robinson's anatomic and surgical work in the abdomen becomes evident when it is known that his name is quoted some forty times in the new edition of Gray's Anatomy (1905). Kelly and Deaver in their works on appendicitis each honor Byron Robinson with some dozen quotations. His anatomic and surgical labors in the abdomen are credited in the recent gynecology of Garrigues, in the genito urinary work of Taylor, in the book on abdominal surgery by Moyneham of England, just published and in the editions of Cunningham's anatomy. Dr. Nicholas Senn says that Dr. Robinson has done more for anatomy and abdominal surgery than any other man in this country and denominated him a pioneer in original work in the abdominal viscera.

Anatomic eponyms are suggestive historic data in the progress and development of anatomy. Anatomic eponyms serve a useful purpose by calling attention to structures for therapeutic and surgical objects. The most practical and useful of Byron Robinson's eponyms are his "circle" (utero-ovarian), "the pelvic brain" and "oxygenic uterine zones;" these three eponyms are of constant use in practice and will

always endure. The list of anatomic eponyms ascribed to Byron Robinson is an example of what persistent indutry can accomplish during fifteen years, though accomplished by considerable college work and a large practice in gynecology and abdominal surgery.

Robinson's master of abdominal and pelvic anatomy has made him known as one of the striking and original clinical teachers as well as accurate diagnostician.—Amer. Med. Compend.

FIELD FOR LAWS—AGAINST BUYING PATIENTS—ASSOCIATION.

The Supreme Court of Arkansas says, in Thompson vs. Van Lear, where it holds valid the act of 1903 prohibiting physicians from soliciting patients through paid agents, that it was argued with much earnestness that laws of this kind are unwise, counsel quoting from Herbert Spencer, who says, in his "Social Statics," that there are no sound reasons why the principles of free trade should not be extended to medical advice and practice. And the court says that there is no doubt some truth in the assertion that it is not best for the law to give too much aid, for people should be taught self-reliance. But this argument is one that should be addressed to the legislature and not the courts. If followed to its logical end it would result in allowing every one to practice medicine who wished to do so, and that is in effect what the author contends should be done. But, however well that may sound as a theoretical proposition, it does not work well in actual practice, if we judge by the statutes of the different states, for there is hardly a state in the Union that does not regulate the practice of medicine by requiring some showing of qualification before a license to practice is granted. The tendency is toward raising the standard for admission to practice rather than lowering it. But, as before stated, those are questions for the legislature and not for the courts. The legislature has acted in this matter, and whether the law be wise or foolish the courts must enforce it if it be valid. Under its police power the state has the right to prohibit things that are hurtful to the comfort, safety and welfare of society. It is now well settled that in the exercise of this power the state may regulate the practice of

medicine and surgery. The law in qustion concerns the public health, over which the police power has the fullest sway, for, health being the *sine qua non* (indispensable condition) of all personal enjoyment, it is not only the right but the duty of the state to pass such laws as may be necessary for the preservation of the health of the people.

Continuing, the court says that counsel quoted Oliver Wendell Holmes as saying that "if the whole materia medica was sunk to the bottom of the sea it would be all the better for mankind and all the worse for the fishes." The court does not dispute that statement, for there may be some truth in it, and it is possible that the legislature had something of the kind in mind when it passed this act. It may have thought that people are too much inclined to imagine themselves in ill health, too prone to consult doctors and take medicine anyway without being urged to do so by hired agents. If it is true, as the "eminent medical authority" quoted by counsel says, that "out of twenty-four serious cases of disease three could not be cured by the best remedies, three others might be benefited and the rest would get well anyway;" if this be true, is it not better, as a rule, to "throw physic to the dogs" and let Nature take her course? Now it is probable that the conscientious physician would give that advice to his patient in a case where he needed no medicine. But it is not likely that a physician would hire an agent to drum up patients for him only to say to them, "Go thy way; thou dost not need a physician." A physician who has secured a patient by means of a hired agent has paid out a certain sum to obtain his patient and is under a strong temptation to put him through a course of treatment, whether he needs it or not, in order to get his money back and make a profit on his investment. and therein lies a danger to the public from such a practice. When a physician obtains patients in that way he in effect buys them, just as if he said to the agent, "I will pay you a certain sum for every patient you send me," or "Will pay you a certain fee out of the money I receive from each patient you send me." Now the court does not think prudent people would wish to submit to the advice of a physician who had paid out money to get them under his treatment. To be successful the agent would necessarily have to keep his interest in the

transaction secret from the patient, and it can be easily seen that such a method of securing patients would very often result in imposition and fraud on the patient and in inducing many people to take treatment who did not need it.

As the court has stated even persons of good health are often too prone to imagine themselves in need of medicine. If it is unsafe to allow such persons to be solicited by hired agents to take what they do not need, how much worse is it to expose the sick to such influences? A man or woman who is laboring under a bodily disease is, other things being equal, more easily imposed on than one who possesses a sound mind in a sound body. The mind of the sick man, like his body, is in an abnormal condition. He is inclined to grasp at shadows and to pursue the wind, and is easily misled into paying money for medical treatment that he does not need. The man who is induced by an agent to buy goods of a merchant can see the goods and judge of his quality before paying his money, but the sick man must take the treatment for which he pays as a matter of faith. As to whether he will be benefited or not, he can only conjecture. He can only judge of the value of the treatment to which he submits by its subsequent results, and not even then with any degree of accuracy, for the causes which lead to health or disease are often obscure. They elude even the trained mind of the physician and much more easily that of the patient.

The objections which the court has stated to this method of securing patients, the temptations to which it would subject the physician and the danger to which it would expose the patient, show a wide distinction between the case of a merchant who drums for custom by hired agents and that of a physician who seeks patronage in the same way. The business of the physician directly affects the public health, and it does not follow because the merchant, the manufacturer and others may solicit trade through hired agents that a physician may do the same thing. The legislature has forbidden the physician to do so, and there are, in the court's opinion, sound reasons on which to base the distinction. The law thus undertakes to protect the physician from

the temptations and the patient from the danger to which they would be exposed by such a practice.

The law being held valid, it follows that an association of physicians formed for the purpose of upholding it and preventing its violation were engaged in a lawful undertaking, and that there were no grounds for an injunction against them, even if their agents made occasional mistakes and prosecuted innocent parties.—Jour. Amer. Med. Ass'n.

THE MODERN MANAGEMENT OF MALARIAL ANEMIA

One of the most obstinate forms of anemia with which the physician has to contend is that which succeeds malarial infection. This particular form of anemia is, unquestionably, due directly to the structural changes induced by the protozoon parasite.

While a mild form of anemia is a common, if not invariable, consequence of malarial infection, there is a severe type termed *malarial anemia,* which not infrequently occurs. This latter variety usually responds slowly to curative measures; and, since its existence renders the individual a fit subject for recurring malarial manifestations upon the slightest exposure, the importance of its cure cannot be too strongly emphasized.

The doctrine of the latency of malarial poisoning in the human body is rapidly gaining in popularity. Some authorities even go so far as to claim that a person who has once been inoculated with the malarial protozoa never completely recovers.

Whether this be true or not, it is certain that the protozoon parasite does exert an influence which tends, for a great length of time, to lower vitality and render feeble the powers of resistance to renewed attacks. This is especially true in the case of women, children and persons of advanced age.

Recent investigators unite in ascribing the cause of *Malarial anemia* to the liberation of hemoglobin from the red corpuscles in the blood vessels. The pigmentation resulting from this liberation of hemoglobin is one of the characteristics of malarial infection. And while the

coloring matter may remain in the blood stream, it usually infiltrates into the cells and neighboring tissues. The deposit of pigment is especially great throughout the tissue of the liver and spleen.

The thickening and softening of the mucous membrane of the stomach which always attends malarial infection seems likely to contribute, at least to some extent, to the development of anemia.

In every instance the degree of the anemia is in direct ratio to the amount of the hemoglobin liberated from the red corpuscles. And this fact explains the philosophy of effecting repair by the administration of iron, the hemoglobin-contributor.

Whether or not the protozoon parasite is ever completely eliminated from the economy remains an unanswered question. But it is now universally conceded that the protracted administration of iron does render the individual party, if not completely, exempt from a return of malarial manifestations of an aggravated type. Far more so, in fact, than does quinine. Indeed we have good cause to believe that iron does exert a destructive influence upon the malarial protozoa and increases the immunity of the individual .

While it is the chief aim of the physician to make up the deficiency of the hemoglobin in these subjects by the administration of iron, it is distinctly important, coincidently, to increase the appetite and augment the capacity to appropriate the food ingested.

To this end, discrimination in the selection of the form of iron to be employed is vitally essential. The acid solutions of the drug are ineligible because of the fact that they cannot be engaged for a long period without harmfully affecting the secretion of the digestive juices and adding to the morbid state of the mucous surfaces of the alimentary tract.

Furthermore, the continued use of acid products of any sort are certain to diminish the alkalinity of the blood, thus depressing, to a very considerable extent, the nutritive processes. Then, too, headache which is an ever disturbing factor in these cases, is intensified by all substances of an acid reaction.

The strongly alkalin preparations of iron, while less objectionable

than the acid ones, are open to fault for the reason that they induce constipation, and in this manner favor auto-intoxication.

By far the most effectual form of iron in the treatment of *malarial anemia* is that which is neutral in reaction and available for immediate absorption. The organo-plastic form of iron, as found in Pepto-Man gan (Gude), certainly fulfils the requirements of the physician with greater promptness and uniformity than any other product thus far evolved.

This preparation—Pepto-Mangan (Gude)—is by all means the most potent hemoglobin-producing form of iron, and it undoubtedly surpasses other ferruginous products as an invigorator of the digestive and nutritive functions. These assertions are easily confirmed by the microscope.

It is also an accepted fact that Pepto-Mangan (Gude) does not in duce constipation, and it seems to materially hasten repair of the mucous surfaces of the alimentary tract resulting from the structural changes incident to the malarial infection.

In short, Pepto-Mangan (Gude) is of inestimable value in the treatment of *malarial anemia* by virtue of its manifold advantages over other preparations of iron.

If this preparation is administered for the proper length of time, the individual gains substantially in strength, flesh, physical and mental energy.